



647800EN-USM4A062020

200 ATJE S1

OPERATOR'S MANUAL
(ORIGINAL MANUAL)

1st EDITION	A062020
UPDATE	

FOREWORD

ABOUT THIS INSTRUCTION MANUAL

This instruction manual forms an integral part of this machine and must be kept in the platform storage compartment at all times.

MANITOU reserves the right to change its models and their equipment without notice. Contact MANITOU for up-to-date information.

This instruction manual gives operators all the information relating to the safety precautions, the usage instructions and the maintenance procedures for ensuring the safe use and reliability of this machine.

Carefully read and understand this instruction manual before using this machine.

This instruction manual has been produced on the basis of the equipment list and the technical specifications given at the time of its design. The equipment level depends on the options chosen and the country of sale.

Depending on the options and the date of sale, certain items of equipment/functions described in this manual may not be present on the machine.

Descriptions and illustrations are non-binding.

ANTICIPATED USE

This machine is a type 3b Mobile Elevating Work Platform (MEWP) designed for carrying and elevating personnel with their tools and equipment to a workplace at height.

MANITOU has ensured that this machine is suitable for use in the standard operating conditions defined in this instruction manual.

TECHNICAL INFORMATION BULLETINS

The safety of the machine and personnel is essential for MANITOU. The technical information bulletins are produced to communicate important safety information, intended for dealers, owners and users of the machine.

This machine must comply with all the associated technical information bulletins. Contact MANITOU or your dealer to get information on the bulletins concerning your machine.

These technical information bulletins are sent to the owners of the machine. As a result, it is very important to register your machine and ensure that the information is accurate and up to date.

When ownership of the machine is transferred, update the information to guarantee that the technical information bulletins will be sent to the new owner.

CONTACTING THE MANUFACTURER

MANITOU should be contacted in the following cases:

- To report an accident.
- To update information on the current owner.
- For questions concerning compliance with standards and regulations.
- For questions concerning machine use or safety.
- For questions concerning any special application or any product modification.

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WARNINGS AND SAFETY INSTRUCTIONS

The following safety warning is used in this instruction manual to alert you to the risks when using or performing maintenance on this machine:



Follow the safety instructions following this warning to prevent any risk of injury, death or material damage.

MACHINE IDENTIFICATION

The machine's identification plate is riveted on the left inside the turntable. The following information is engraved on it:

Designation	
Year of manufacture	
Model year	
Unladen mass	
Nominal power	
Voltage	
Inside / Outside	
Maximum load	
Maximum number of persons	
Mass of equipment	
Manual forces	
Maximum inclination	
Maximum wind speed	
Serial Number	



The EWP additional information plate is riveted on the left inside the turntable. The following information is engraved on it:

Designation	
Year of manufacture	
Model year	
Unladen mass	



200 ATJE S1

Commercial name: 200 ATJE



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2 - DESCRIPTION

3 - MAINTENANCE

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1 - OPERATING AND SAFETY INSTRUCTIONS

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INSTRUCTIONS TO THE COMPANY MANAGER

THE SITE

Proper management of the machine's area of travel will reduce the risk of accidents:

- Ground not unnecessarily uneven or obstructed.
- No excessive slopes.
- Pedestrian traffic controlled, etc.

THE OPERATOR

IMPORTANT

Only qualified, authorised personnel can use this machine.

This authorisation is given in writing by the appropriate person in the establishment with respect to the use of machine and must be carried permanently by the operator.

IMPORTANT

On the basis of experience, there are a number of possible situations in which operating the machine is contra-indicated.

Such foreseeable abnormal uses, the main ones being listed below, are strictly forbidden:

- *The foreseeable abnormal behaviour resulting from ordinary negligence, but which does not result from any wish to put the machinery to any improper use.*
- *The reflex reactions of a person in the event of a malfunction, incident, fault, etc. during operation of the machine.*
- *Behaviour resulting from application of the "principle of least effort" when performing a task.*
- *The foreseeable behaviour of such persons as: apprentices, teenagers, handicapped persons, trainees tempted to drive a machine, operators tempted to operate a machine to win a bet, in competition or for their own personal experience.*
- *The person in charge of the establishment must take these criteria into account when assessing the suitability of a person to drive.*

IMPORTANT

OBTAIN INFORMATION ON:

- *How to behave when there is a fire.*
- *The location of the nearest first aid kit and fire extinguisher.*
- *The emergency telephone numbers for calling (the doctors, ambulance, hospital and fire brigade).*

THE MACHINE

A - SUITABILITY OF THE MACHINE FOR THE TASK

- MANITOU has ensured that this machine is suitable for use under the standard operating conditions defined in this operator's manual, with an **OVERLOAD TEST COEFFICIENT OF 1.25** and an **OPERATIONAL TEST COEFFICIENT OF 1.1**, as stipulated in harmonised standard **EN 280** for **MEWPs** (Mobile Elevating Work Platforms).
- Before commissioning, the company manager must make sure that machine is appropriate for the work to be done, and perform certain tests (in accordance with current legislation).

B - ADAPTING THE MACHINE TO USUAL ENVIRONMENTAL CONDITIONS

⚠ IMPORTANT ⚠

For operation under average climatic conditions, i.e.: between -15 °C and +35 °C, lubricants are topped up in the factory.

For operation under more severe climatic conditions, before starting up, it is necessary to drain all the circuits, then ensure correct levels of lubricants using lubricants properly suited to the relevant ambient temperatures. The same applies to coolant.

⚠ IMPORTANT ⚠

Machines with diesel engines are designed for outdoor use under normal atmospheric conditions and indoor use in suitably aerated and ventilated premises.

Electrical machines are designed for outdoor use under normal atmospheric conditions and for indoor use.

It is prohibited to use the machine in areas where there is a risk of fire or which are potentially explosive (e.g. refineries, fuel or gas depots, stores of inflammable products, etc.).

For use in these areas, specific equipment is available, consult your dealer.

- In addition to standard equipment mounted on your machine, many options are available, such as: rotating beacon light, worklight, etc. Contact your dealer.
- Take the climate and atmospheric conditions of the site of use into account. Consult your dealer for adapting the lubricants and frost protection.
- Prevent fire risks associated with use in dusty and flammable conditions.
- A machine operating in an area without fire extinguishing equipment must be equipped with an individual extinguisher. Solutions are available, consult your dealer.

C - MODIFYING THE MACHINE

⚠ IMPORTANT ⚠

It is strictly prohibited to replace machine components with components not approved by Manitou (batteries, wheels, platform, etc.).

⚠ IMPORTANT ⚠

It is strictly forbidden to change the structure and settings of the various components of your machine (hydraulic pressure, calibrating limiters, engine speed, sensors, addition of extra equipment, addition of counterweight, unapproved attachments, alarm systems, etc.) yourself. In this event, the manufacturer cannot be held responsible.

⚠ IMPORTANT ⚠

Risk of the machine becoming unstable:

- *Depending on the model, your machine may be supplied with standard wheels or all-terrain wheels. It is PROHIBITED to change from one type of wheel to the other.*
- *ELECTRICAL MACHINES: it is prohibited to replace the batteries with lighter batteries.*

INSTRUCTIONS

- The instruction manual should always be in good condition, in the operator's language and placed in the platform storage compartment.
- You must replace the instruction manual, as well as any plates or stickers, if they are no longer legible or are missing or damaged.

MAINTENANCE

⚠ IMPORTANT ⚠

Refer to chapter: MACHINE MAINTENANCE INSTRUCTIONS.

⚠ IMPORTANT ⚠

Your machine must be periodically inspected to ensure its continued compliance.

The inspection frequency is defined by the legislation in force in the country in which the machine is used.

- Maintenance or repairs other than those detailed in section 3 - MAINTENANCE must be carried out by qualified personnel (consult your dealer) and under the necessary safety conditions to maintain the health of the operator and any third party.
- Example for France: the manager in charge of the establishment using a machine must open and maintain a maintenance log for each machine (order of 2 March 2004).

INSTRUCTIONS FOR THE OPERATOR

INTRODUCTION

IMPORTANT

The risk of accident while using, servicing or repairing this machine can be reduced if you follow the safety instructions and preventive measures detailed in these instructions.

Failure to respect the safety and operating instructions, or the instructions for repairing or servicing this machine may lead to serious, even fatal accidents.

- Only the operations and manoeuvres described in this operator's manual must be performed. The manufacturer cannot predict all possible risky situations. Consequently, the safety instructions given in the operator's manual and on the machine itself are not exhaustive.
- As an operator, you must at all times give reasonable consideration to the possible risks to yourself, to others or to the machine itself when you use it.

GENERAL INSTRUCTIONS

A – OPERATOR'S MANUAL

IMPORTANT

Carefully read and understand this instruction manual before using this machine.

- The instruction manual should always be in good condition, in the operator's language and placed in the platform storage compartment.
- You must replace the instruction manual, as well as any plates or stickers, if they are no longer legible or are missing or damaged.
- Any operations or manoeuvres not described in the operator's manual are forbidden.
- Follow the safety advice and the instructions on the machine's stickers.
- As a safety precaution, a user must be present on the ground when the machine is in use.
- Familiarise yourself with the machine on the terrain where it will be used.
- The machine must also be used in accordance with good engineering practice.
- Do not use the machine if the wind speed is over 45 km/h (12.5 m/s).
- Do not push or pull similar structures or elements off the platform. The maximum manual force is indicated in 2 - INSTRUCTIONS: SPECIFICATIONS and on 1 or more stickers located in the platform.
- Machines intended exclusively for indoor use must not be used outside the buildings.

B - AUTHORISATION FOR USE IN FRANCE

(or see current legislation in other countries).

- This machine is not type-approved for driving on public roads.
- Only qualified, authorised personnel can use the machine. This authorisation is given in writing by the appropriate person in the establishment where the machine is to be used and must be carried permanently by the operator.
- The operator is not empowered to authorise the driving of the machine by another person.

C - MAINTENANCE

IMPORTANT

Do not use the machine if the wheels are damaged or excessively worn, because this could put your own safety or that of others at risk, or cause damage to the machine itself.

IMPORTANT

For electrical machines, the operator must ensure that:

- Safety goggles are always worn when charging the batteries.*
- The batteries are not charged in an explosive environment.*
- There is no smoking and no naked flame directed towards the batteries when they are being handled (removal/installation) and when monitoring filling levels.*
- Do not leave the battery charger connected during a lightning storm.*
- The operator must carry out the daily maintenance (➤ 3 - MAINTENANCE) before using the machine in his place of work.
- The operator must immediately advise his superior if his machine is not in good working order or does not comply with the safety notice.
- The operator is prohibited from carrying out any repairs or adjustments himself, unless he has been trained for this purpose. He must keep the machine properly cleaned if this is among his responsibilities.
- The operator is responsible for deciding and adjusting the frequency of cleaning needed to prevent the risk of fire ensuing from the build-up of flammable material. The operator should pay special attention to all the areas of the machine where these risk materials are likely to accumulate.
- The operator must ensure that the wheels are appropriate for the type of ground (see the ground contact area of the wheels ➤ 2 - DESCRIPTION: SPECIFICATIONS). Optional solutions are available, consult your dealer.

D - MODIFYING THE MACHINE

- ➤ INSTRUCTIONS TO SITE MANAGER: ➤ C - MODIFYING THE MACHINE.

E - GROUND LINK

- MACHINES WITHOUT OSCILLATING AXLE (ACCORDING TO MODEL)

IMPORTANT

The frame is rigid, so the machine can bear on only three wheels.

- MACHINES WITH OSCILLATING AXLE (ACCORDING TO MODEL)

IMPORTANT

*The oscillating axle enables the machine to bear on four wheels when in transport position (within the limits of the axle's oscillation).
When moving in the working position, the oscillating axle is locked (the frame is stiff) so the machine may bear on only three wheels.*

F - SAFETY DEVICES

- This machine is fitted with special safety devices that are able to limit its operation as circumstances require (➤ 2 - DESCRIPTION):
 - Excessive load in the platform.
 - Tilting of the frame beyond the authorised limits.
 - Blocking of the oscillating axle (according to model).
 - Slack or broken telescope cable (according to model).

A - BEFORE USING THE MACHINE

- Perform the daily maintenance (➤ 3 - MAINTENANCE).

B - DRIVER'S CAB LAYOUT

- Whatever their experience, operators are advised to familiarise themselves with the position and operation of the control panels before putting the machine into operation.
- Do not get into or out of the platform until it is fully lowered.
- Always get into and out of the platform through the gate or using the sliding mid-rails (depending on the model).
- Always get in and out of the platform facing into the platform.
- Always use both hands and one foot or both feet and one hand to get in and out of the platform.
- Make sure that the sliding mid-rails (depending on the model) are in the low position and that the gate is closed properly (depending on the model) before using this machine.
- Do not attach the sliding mid-rails in the high position.
- MANITOU strongly recommends wearing a safety harness attached to a lashing point in the platform, ➤ 2 - DESCRIPTION. Wearing a safety harness or other personal fall protection may be mandatory, comply with the local, government and national regulations in force, the employer's safety rules and the rules for work sites.
- The safety harness or other personal fall protection must comply with the local, government and national regulations in force. They must be inspected in accordance with the regulations in force.
- Safety helmets must be worn.
- Wear suitable clothing for driving the machine; do not wear baggy clothes.
- Never operate the machine when hands or feet are wet or soiled with greasy substances.
- Make sure you have the appropriate protective equipment for the job to be done.
- Prolonged exposure to high noise levels may cause hearing problems. It is recommended to wear ear muffs to protect against excessive noise.
- Remain alert at all times when using the machine. Do not listen to the radio or music using headphones or earphones.
- The operator must always be in the normal operator's position. It is prohibited to have arms or legs, or generally any part of the body, protruding from the platform.
- The control units must never in any event be used for any other than their intended purposes (e.g. for getting in or out of the platform, as a coat hook, etc.).
- The machine must not be fitted with unauthorised attachments that increase the unit's wind load.
- Do not use ladders or improvised structures in the platform to gain extra height.
- Do not climb onto the platform railings to gain extra height.

C - ENVIRONMENT

⚠ IMPORTANT ⚠

If the platform must remain stationary over a structure for a long period, there is a risk that the platform will descend and rest on this structure because of the oil cooling in the cylinders or a minor leak in the cylinder locking system. To eliminate this risk:

- *Regularly check the distance between the platform and the structure and readjust if necessary.*
- *If possible use the machine at an oil temperature as close as possible to ambient temperature.*

⚠ IMPORTANT ⚠

It is forbidden to use the machine close to electricity cables. Maintain the specified safe distances, refer to 5.8 WORKING IN PROXIMITY TO AERIAL CONDUCTORS (OVERHEAD POWER LINES) on the next pages.

You must consult your local electrical agency.

You could be electrocuted or seriously injured if you operate or park the machine too close to power cables.

If the machine comes into contact with electrical cables, press the Emergency Stop button.

Call for help, warn people on the ground not to touch the machine, and ask them to switch off or get somebody to switch off the power supply to the cables.

⚠ IMPORTANT ⚠

Do not use this machine during lightning storms, snow storms, during frosty periods or in hazardous weather conditions. In case of strong wind exceeding 45 km/h, do not make any movement that may endanger the machine's stability.

- Comply with site safety regulations.
- The machine can be manoeuvred from the ground: ensure that you forbid access.
- If you have to use the machine in a dark area or at night, make sure it is equipped with working lights.
- The machines may not be used as cranes or elevators for the permanent transport of people or materials, nor as jacks or supports.
- Suspending a load under the platform or on any part of the lifting apparatus is strictly forbidden.
- When operating, ensure that there is no one or anything impeding the machine's progress and operation.
- When raising the platform, ensure that nothing/nobody is impeding the machine's operation and do not perform any inappropriate manoeuvres.
- Do not allow anybody to come near the working area of the machine or pass beneath the lifting structure or beneath the platform. To ensure this, mark out your working area.
- Driving on a slope:
 - Adjust the machine speed with the proportional control handle.
 - Make sure that the slope is not steeper than the maximum slope for the machine (≤ 2° - DESCRIPTION).
- Take into account the machine's dimensions and its load before trying to negotiate a narrow or low passageway.
- Never move onto loading ramps without having first checked:
 - That they are suitably positioned and made fast.
 - That the vehicle to which it is connected (trailer, wagon, etc.) cannot move.
 - That they are suitable for the size and weight of the machine (≤ 2° - DESCRIPTION).
 - That the slope is not steeper than the maximum slope for the machine (≤ 2° - DESCRIPTION).
- Never move onto a foot bridge, floor or freight lift without being certain that they are suitable for the size and weight of the machine and without having checked that they are in sound working order.
- Be careful in the area of loading bays, trenches, scaffolding, soft ground, manholes, etc.
- Make sure the ground is stable and firm under the wheels and/or stabilisers before lifting the platform. If necessary, add sufficient wedging under the stabilisers.
- Do not attempt any operations outside the machine's capabilities.
- Ensure that any equipment and materials loaded onto the platform (pipes, cables, containers, etc.) cannot fall out. Do not pile this equipment and these materials to the point where it is necessary to step over them.

- Keep all body parts, conductive objects or parts of the machine a safe distance from power lines or live components, unless the local, government and national regulations in force, the employer's safety rules or the rules for work sites are stricter in terms of the distance required.
- Take into account the movement of the platform and the swinging or sagging of the power lines.
- To visually recognise the wind speed, refer to the empirical wind evaluation scale:

BEAUFORT scale (wind speed at a height of 10 m on a flat site)						
Force	Type of wind	Speed (knots)	Speed (km/h)	Speed (m/s)	Effects on Land	Sea conditions
0	Calm	0 - 1	0 - 1	<0.3	Smoke rises vertically.	Sea is like a mirror.
1	Light air	1 - 3	1 - 5	0.3 - 1.5	Smoke indicates direction of wind.	Ripples with appearance of scale, no foam crests.
2	Light breeze	4 - 6	6 - 11	1.6 - 3.3	Wind felt on face, leaves rustle.	Short wavelets, but pronounced.
3	Gentle breeze	7 - 10	12 - 19	3.4 - 5.4	Leaves and small twigs in constant motion.	Very small waves, crests begin to break.
4	Moderate breeze	11 - 16	20 - 28	5.5 - 7.9	Wind raises dust and loose pieces of paper; small branches are moved.	Small waves, becoming longer, numerous whitecaps.
5	Fresh breeze	17 - 21	29 - 38	8 - 10.7	Small trees in leaf begin to sway.	Wavelets form on inland waters; moderate waves, taking longer form.
6	Strong breeze	22 - 27	39 - 49	10.8 - 13.8	Large branches in motion, whistling heard in overhead wires, umbrella use becomes difficult.	Larger waves forming, whitecaps everywhere, some spray.
7	Near gale	28 - 33	50 - 61	13.9 - 17.1	Whole trees in motion, inconvenience felt when walking against the wind.	Sea heaps up; white foam from breaking waves begins to be blown in streaks along the direction of the wind.
8	Gale	34 - 40	62 - 74	17.2 - 20.7	Wind breaks twigs off trees; impedes progress.	Moderately high waves of greater length; edges of crests begin to break into spindrift.
9	Strong gale	41 - 47	75 - 88	20.8 - 24.4	Wind damages roofs (chimneys, slates, etc.).	High waves, crests of waves begin to topple, streaks of foam; reduced visibility.
10	Storm	48 - 55	89 - 102	24.5 - 28.4	Seldom experienced inland; trees uprooted; considerable structural damage occurs.	Very high waves; white streaks of foam; reduced visibility.
11	Violent storm	56 - 63	103 - 117	28.5 - 32.6	Very rare, widespread damage.	Exceptionally high waves able to hide medium sized ships from view, reduced visibility.
12	Hurricane	64 +	118 +	32.7 +	Devastating damage.	Sea completely white; air filled with foam and spray, very reduced visibility.

NOTE: The following chapter 5.8 is reproduced from AS2550.10—2006 Standard

5.8 WORKING IN PROXIMITY TO AERIAL CONDUCTORS (OVERHEAD POWER LINES)

5.8.1 General

Clause 5.8 refers to hazards and risks presented by the operation of MEWPs in the vicinity of overhead electrical conductors.

NOTES:

- 1 Occupational Health and Safety authorities and electricity supply bodies in each State may have issued guidelines for the use of cranes and other plant in the vicinity of overhead conductors.
- 2 A conservative approach has been adopted. Separation distances have not been determined based purely on electrical voltages of conductors, nor whether the conductor is bare or insulated. The distances were chosen based on experience and practical considerations, since MEWPs cannot be operated as accurately as arcing distances can be calculated.

Before setting the MEWP into operational configuration, a check for the presence of overhead conductors and power lines shall be undertaken.

Throughout Clause 5.8, the following definitions apply:

- (a) *Aerial conductor*—an overhead conductor that is either insulated or bare.
- (b) *Operation*—where any MEWP components are moved or about to be moved from their transport configuration and in the instance of MEWPs having stabilizers, where stabilizers are moved or about to be moved from their transport configuration.
- (c) *Overhead power line*—aerial conductors and other parts that make up an aerial line for the distribution and transmission of electrical energy.
- (d) *Electricity distributor*—the power supply authority, transmission line operator, generator, traction company or distribution company.

All aerial conductors shall be treated as live unless documentary evidence that the conductors have been positively de-energized, isolated or earthed has been received from the electricity distributor or transmission line operator.

Where such documentary evidence has been made available, it shall state the date and time frame of isolation and any special conditions and precautions. The MEWP shall not be operated in contravention of this documentary information.

5.8.2 Precautions when operating near live aerial conductors

The MEWP shall only be operated within close proximity of live aerial conductors, if the separation distances appropriate to the 'NO-GO-ZONE' or 'SPOTTER-REQUIREDZONE', and risk controls given in Clause 5.8.3, are maintained.

A site-specific risk assessment shall be completed before the commencement of the job by a trained and competent person. This assessment shall be verified immediately before work commences, and its relevance monitored during the job. If initial circumstances change, work shall cease until an appropriate risk assessment is undertaken.

Where a spotter is required to inform the operator in the event of the MEWP approaching the zone boundaries shown, the following applies:

- (a) The spotting operation shall be carried out by a competent person.
NOTE: Required competency levels may be defined by the applicable State authority.
- (b) The spotter shall be positioned so that the exposure to hazards is eliminated or minimized.
- (c) The spotter shall be able to clearly observe the separation distances.
- (d) The spotter shall not undertake any other work whilst performing spotting duties.
- (e) The spotter shall be specifically instructed in the workplace hazards applicable to the site.
- (f) The spotter shall be able to communicate with the MEWP operator at all times during erection, operation and dismantling.

5.8.3 Separation distances and risk controls

Where possible, the zone separation distances should be not less than those shown in Figure 5.8.3.

NOTE: The separation distances shown in Figure 5.8.3 include allowance for sag and sway of line(s) due to the effects of wind and temperature.

Where the separation distances cannot be achieved, the electricity distributor shall be notified in writing. The MEWP shall not be operated within the 'no go zone' until the applicable requirements below are satisfied.

When operating in the vicinity of aerial conductors, the separation distance between the MEWP and aerial conductor and risk controls shall comply with the following:

(a) *Overhead power lines (up to and including 133 kV)* The following applies:

(i) *Spotter required zone* The MEWP shall not be operated in the 'spotter required zone' as indicated in Figure 5.8.3 for overhead power lines up to and including 133 kV, unless—

- (A) the electricity distributor is notified before commencing work;
- (B) written permission from the electricity distributor has been obtained;
- (C) the MEWP is insulated in accordance with the requirements of AS 1418.10(Int.);
- (D) a spotter performs spotting duties;
- (E) a pre-start site/job meeting has been convened and a risk assessment completed; and
- (F) the MEWP is equipped with one controlled descent device located at the platform or basket for each occupant, and each occupant is trained and experienced in its use.

NOTE: The controlled descent device is not an emergency retrieval device.

(ii) *No go zone* The MEWP shall not be operated in the 'no go zone' as indicated in Figure 5.8.3 for overhead power lines up to and including 133 kV, unless—

- (A) the electricity distributor is notified before commencing work;
- (B) written permission from the electricity distributor has been obtained;
- (C) all conditions specified by the electricity distributor are complied with;
- (D) the MEWP is insulated in accordance with the requirements of AS 1418.10(Int.);
- (E) a spotter performs spotting duties;
- (F) a pre-start site/job meeting has been convened and a risk assessment completed; and
- (G) the MEWP is equipped with one controlled descent device located at the platform or basket for each occupant, and each occupant is trained and experienced in its use.

NOTE: The controlled descent device is not an emergency retrieval device.

(b) *Overhead power lines (greater than 133 kV)* The following applies:

(i) *Spotter required zone* The MEWP shall not be operated in the 'spotter required zone' as indicated in Figure 5.8.3 for overhead power lines greater than 133 kV, unless—

- (A) written permission from the electricity distributor has been obtained;
- (B) an easement entry permit has been provided by the electricity distributor;
- (C) a spotter performs spotting duties;
- (D) a pre-start site/job meeting has been convened and a risk assessment completed;
- (E) the MEWP is insulated in accordance with the requirements of IEC61057 or ANSI/SIA A92.2; and
- (F) the MEWP is equipped with one controlled descent device located at the platform or basket for each occupant, and each occupant is trained and experienced in its use.

NOTE: The controlled descent device is not an emergency retrieval device.

- (ii) *No go zone* The MEWP shall not be operated in the 'no go zone' as indicated in Figure 5.8.3 for overhead power lines greater than 133 kV, unless—
- (A) an easement entry permit has been provided by the electricity distributor;
 - (B) written permission from the electricity distributor has been obtained;
 - (C) all conditions specified by the electricity distributor are complied with;
 - (D) the electricity distributor is notified before commencing work;
 - (E) a spotter performs spotting duties;
 - (F) a pre-start site/job meeting has been convened and a risk assessment completed;
 - (G) the MEWP is insulated in accordance with the requirements of IEC61057 or ANSI/SIA A92.2; and
 - (H) the MEWP is equipped with one controlled descent device located at the platform or basket for each occupant, and each occupant is trained and experienced in its use.
- NOTE: The controlled descent device is not an emergency retrieval device.

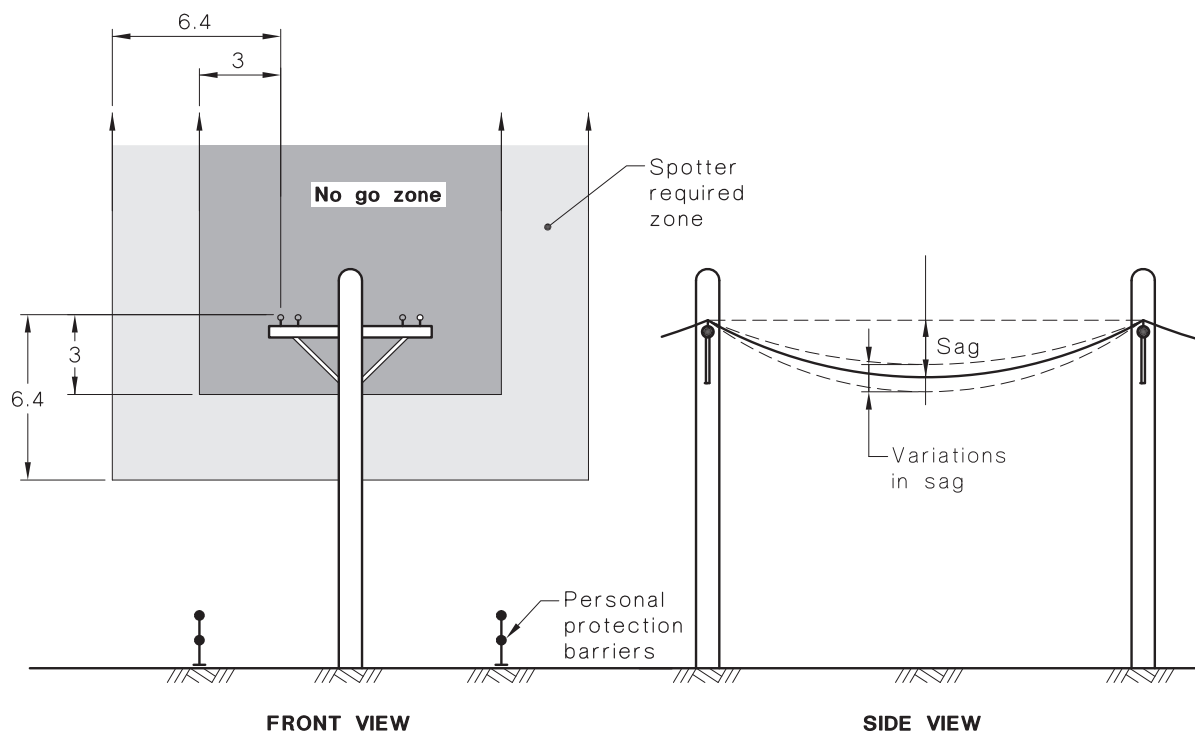
- (iii) *Spotter required zone* The MEWP shall not be operated in the 'spotter required zone' as indicated in Figure 5.8.3 for overhead power lines greater than 133 kV, unless—
- (A) written permission from the electricity distributor has been obtained;
 - (B) an easement entry permit has been provided by the electricity distributor;
 - (C) a spotter performs spotting duties;
 - (D) a pre-start site/job meeting has been convened and a risk assessment completed;
 - (E) the MEWP is insulated in accordance with the requirements of IEC61057 or ANSI/SIA A92.2; and
 - (F) the MEWP is equipped with one controlled descent device located at the platform or basket for each occupant, and each occupant is trained and experienced in its use.
- NOTE: The controlled descent device is not an emergency retrieval device.

- (c) *Public transport authorities* Where aerial conductors are dedicated to the use of public transport authorities (e.g. tramways and railways), the separation distance shall be the same as that for aerial conductors up to and including 133 kV (see Item (a))
- (d) *Downshop conductors* Before mobile machinery is set up for operation in the vicinity of downshop conductors, the power supply to the conductors shall be isolated unless appropriate control measures have been developed and implemented.

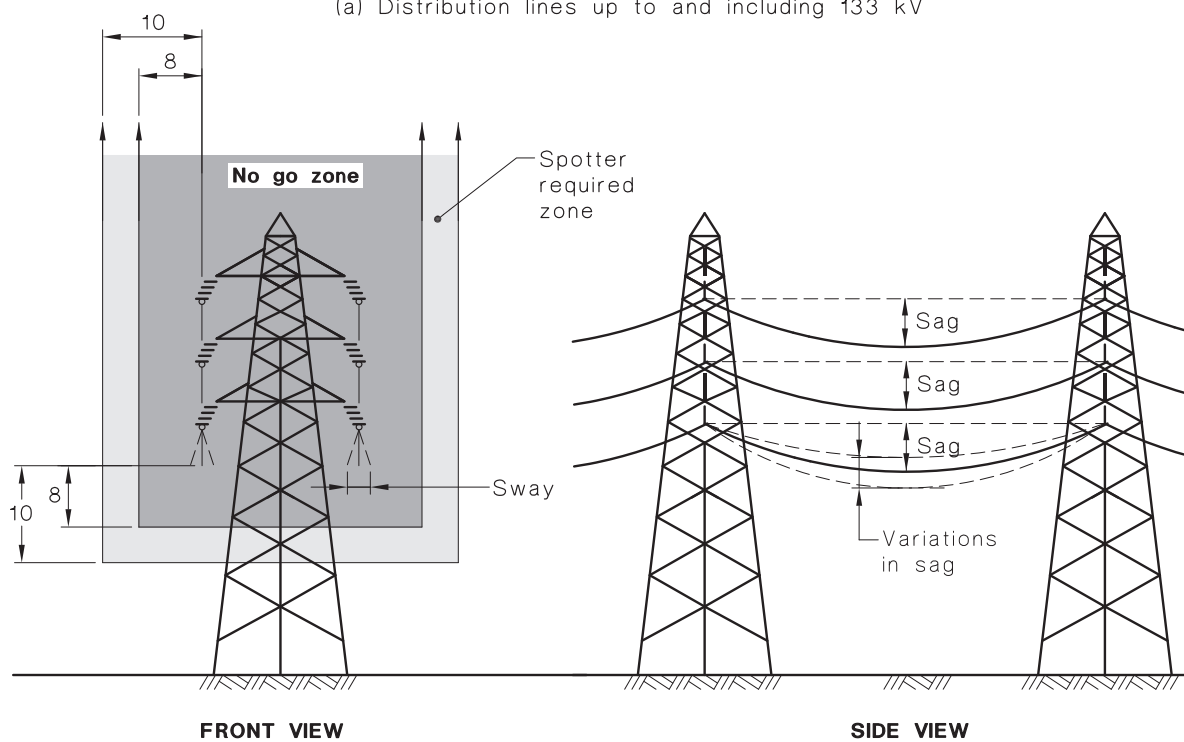
NOTES:

- 1 Downshop conductors (e.g. collector rails), should be clearly identified.
- 2 Clearances from downshop conductors should be in accordance with AS/NZS 3000.

- (e) *Barriers at ground level* Where people not involved in the operation could otherwise come into the area of possible voltage step potential, barriers shall be provided at ground level to prevent this from occurring. Appropriate warning signs shall be displayed on the barriers. Pedestrians should be barricaded from the area of possible voltage step potential (see Figure 5.8.4) in the vicinity of the MEWP and associated equipment.
- (f) *Earthing systems* An appropriate earthing system shall be fitted to the MEWP and shall be in use. Operators and those working in proximity to the MEWP shall be advised of the limits of the effectiveness of the earthing equipment.
- (g) *High visibility bunting* Where high visibility bunting, for example 'tiger tails' is applied to the conductors, it shall be regarded as a visual indicator only and not as insulation.



(a) Distribution lines up to and including 133 kV



(b) Transmission lines greater than 133 kV

LEGEND:

-  = No shading, in the front views, indicates no proximity requirements
-  = Light shading indicated spotter is required
-  = Heavy shading indicates the NO GO ZONE

DIMENSIONS IN METRES

FIGURE 5.8.3 CLEARANCES FROM LIVE AERIAL CONDUCTORS

5.8.4 Aerial conductors contact

If the MEWP or load contacts aerial conductors, the relevant electricity distributor shall be immediately notified of the situation and, until assistance is received, a competent person shall remain in a prominent position to warn of the danger of electrocution.

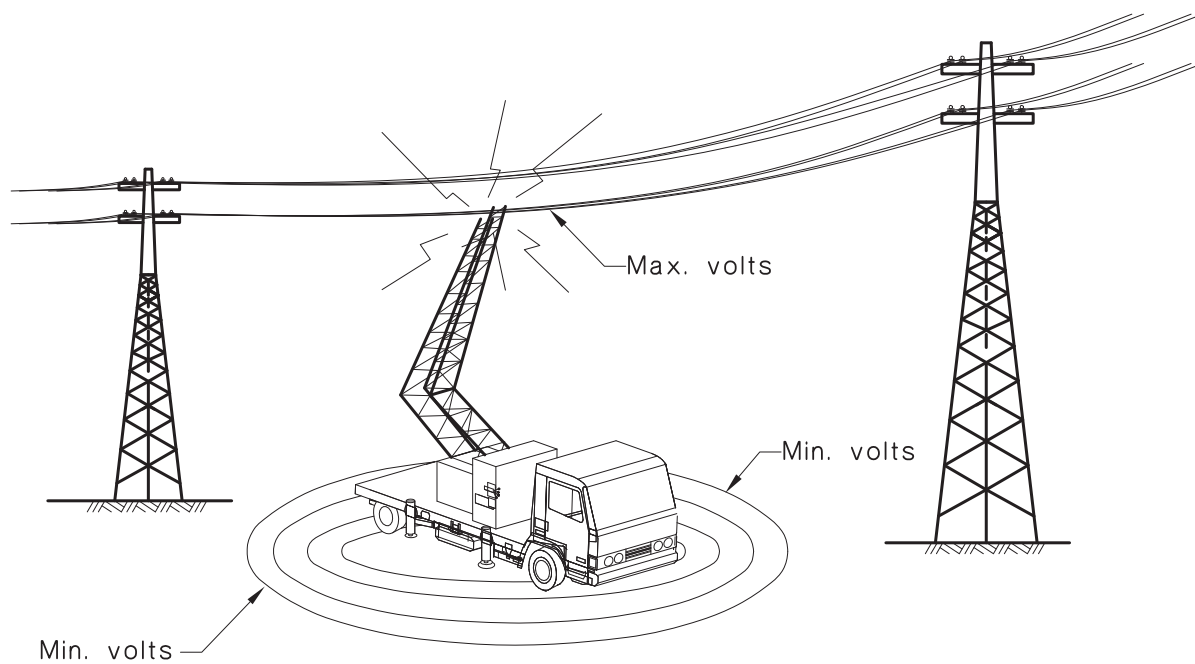
In such an event the MEWP operator should act as follows:

- (a) Remain on the MEWP.
- (b) Warn all other personnel to keep away from the MEWP and not touch any part of the MEWP.
- (c) Without anyone approaching the MEWP, operate the MEWP in such a manner to break contact, where possible.
- (d) When unable to move or disentangle the MEWP from the aerial conductors, remain on the MEWP and take no further action until it is confirmed that conditions are safe.
- (e) Only when it is essential to leave the MEWP because of fire or some other reason, to avoid being electrocuted, the following actions should be taken:
 - (i) For personnel on the chassis of the vehicle, jump clear as far away from the MEWP as possible and avoid touching the MEWP and the ground at the same time. When moving away from the MEWP, shuffle or hop slowly across the affected area to avoid a simultaneous contact across areas of high potential difference (see Figure 5.8.4)
 - (ii) For personnel in the platform or basket, escape using a controlled descent device. When moving away from the MEWP, shuffle or hop slowly across the affected area to avoid a simultaneous contact across areas of high potential difference (see Figure 5.8.4).

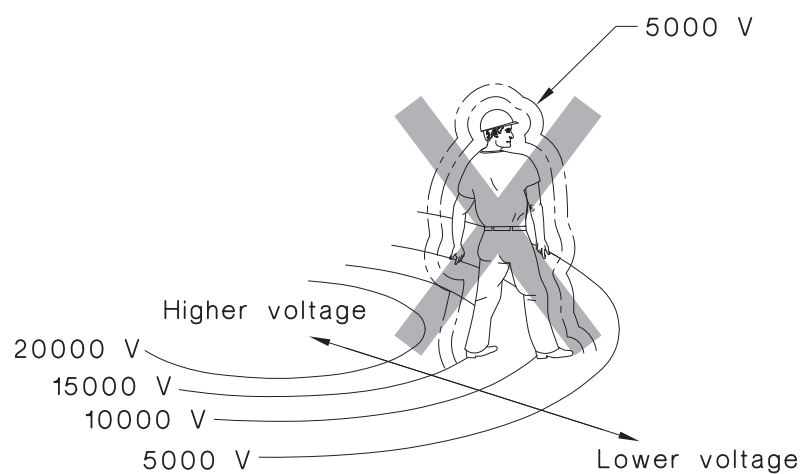
Where the MEWP operator is immobilized, the power shall be isolated before assistance is given.

When a MEWP has been in contact with a live aerial conductor, it shall be withdrawn from service and checked by a competent person for any damage to its components. Any actions recommended by the competent person shall be completed before the MEWP is returned to service.

NOTE: AS 1418.10(Int) provides additional guidelines relating to inspection of MEWPs following contact with powerlines.



(a) Affected area



(b) Avoid simultaneous contact across areas of high potential difference

FIGURE 5.8.4 TYPICAL AFFECTED AREA SURROUNDING A MEWP WHEN IN CONTACT WITH A LIVE AERIAL CONDUCTOR

D - VISIBILITY

- Ensure good visibility of your route at all times. To increase your visibility, you can move forwards with the jib slightly raised (beware of the risk of falls in the platform from knocking into a low doorway, overhead electric wires, travelling cranes, road bridges, railway lines or any obstacle in the area in front of the machine). While reversing, look directly behind you. In any case, avoid reversing long distances.
- If visibility of your road is inadequate, ask someone to help, standing outside the area in which the machine will be moving, and make sure you always have a good view of this person.

E - STARTING MACHINES WITH A DIESEL ENGINE

IMPORTANT

Failure to respect polarity between batteries can cause serious damage to the electrical circuit.

The electrolyte in the battery may produce an explosive gas.

Avoid flames and generation of sparks close to the batteries. Never disconnect a battery while it is being charged.

- INSTRUCTIONS: 2 - DESCRIPTION.
- If using an emergency battery for start-up, use a battery with the same characteristics and respect battery polarity when connecting it. Connect the positive terminal first, and then the negative terminal.

F - SWITCHING ON ELECTRICAL MACHINES

- INSTRUCTIONS: 2 - DESCRIPTION
- Do not use the machine if the battery or batteries are discharged to the point that movements are slowed down. In certain cases, the machine may stop (2 - DESCRIPTION for the charge level not to be exceeded).

G - DRIVING THE MACHINE

IMPORTANT

Operators should be aware of the risks connected with using this machine, notably:

- Risk of losing control.

- Risk of the machine becoming unstable.

The operator must remain in control of the machine at all times.

- Do not attempt any operations outside the machine's capabilities.
- Familiarise yourself with the machine on the terrain where it will be used.
- Driving long distances should always be done with the machine in the transport position (2 - DESCRIPTION).
- Drive smoothly and adapt the machine's speed to the usage conditions (ground configuration, load in the platform, etc.). Depending on the machine model, select the appropriate speed for the usage conditions (2 - DESCRIPTION).
- Keep control of the speed in all circumstances.
- Ensure that the brakes work efficiently, taking into account the braking distances.
- Take extreme care when manoeuvring the machine with the platform raised. Ensure that there is sufficient visibility.
- Take bends slowly.
- Look where you are going and always make sure you have good visibility along the route.
- Drive round obstacles.
- Never drive on the edge of a ditch or steep slope.
- Travel slowly on damp, slippery or uneven terrain or on loading ramps.
- Machines with a diesel engine: never leave the engine running when the machine is unattended.
- Never leave the machine switched on during the operator's absence.
- Whatever your operating speed, you must reduce the speed as much as possible before stopping.
- The machine should be operated in an area free of any obstructions or danger when the platform is lowered to the ground.
- Pay attention to structures, objects and people when manoeuvring.
- The operator using the machine must be aided on the ground by a person with adequate training.
- Remain within the limits of the machine's movement amplitude (2 - DESCRIPTION).
- Do not load the platform if the machine needs to travel on a steep slope.

H - SHUTTING DOWN THE MACHINE

IMPORTANT

Machines with a diesel engine: before stopping the engine after intensive use, leave the engine idling for a few moments to allow the coolant and oil to gradually lower the temperature of the engine and prevent damage.

- INSTRUCTIONS: < 2 - DESCRIPTION.
- Park the machine on a flat surface.
- Make sure that the machine is not stopped in any position that will interfere with the traffic flow and in particular the machine should not be less than one metre from a railway track.
- Never leave the ignition key in the machine during the operator's absence.
- Close and lock (if applicable) all the machine's covers.
- In the event of prolonged parking on a site, protect the machine from bad weather, particularly from frost. Machines with a diesel engine: check the antifreeze protection level.

⚠ IMPORTANT ⚠

Ensure that there are no hydraulic or electrolyte leaks on the machine.

⚠ IMPORTANT ⚠

When welding, work in the opposite direction from the control panel to avoid sparks damaging it.

- Any welding and cutting (blowtorch) work from the platform on a building's metallic structures requires the following precautions to be taken:

A - WITH AN ELECTRICAL WELDING SET

- It is essential that the machine has a discharge braid connecting the chassis of the machine to the ground.
- It is also essential that the external structure to be welded is connected to the earth.
- If the above conditions are observed, the machine can, in this case, be in contact with the structure or the elements to be welded without damaging the electronic components.
- The power supply to the welding equipment must be via a grounded socket, including the extension lead if required.
- In all cases, make sure that there are no electric arcs in the platform or on the machine (contact between the rod or torch and ground plug of the welding equipment). For this, the ground plug of the welding equipment must never be placed on the machine's platform; it must only be placed as close as possible to the part to be welded.
- Switch off the welding equipment before disconnecting the ground clamp from the element or elements to be welded.

B - WITH A BLOW TORCH

- Attach the blow torch's bottles to the platform's vertical posts.
- Sparks and clippings must not be directed towards the battery or batteries.
- Do not set the blow torch down on the floor of the platform while it is still operating or point it towards the control panel or its power supply harness.

MACHINE MAINTENANCE INSTRUCTIONS

GENERAL INSTRUCTIONS

IMPORTANT

Carefully read and understand this instruction manual before working on this machine.

Carry out all repairs immediately, even if the repairs concerned are minor.

Repair all leaks immediately, even if the leak concerned is minor.

Be careful of the risk of burning and splashing (exhaust, radiator, engine, hydraulic oil, etc.).

- Wear clothes suitable for the maintenance of the machine, avoid wearing jewellery and loose clothes. Tie and protect your hair, if necessary.
- Ensure that process materials and of spare parts are disposed in all safely and in an ecological manner.
- Machines with a diesel engine:
 - Make sure the area is adequately ventilated before starting the engine.
 - Before working on the machine: turn off the engine and power down the machine (⇐ 2 - DESCRIPTION).
- Electrical machines:
 - Before working on the machine: power down the machine (⇐ 2 - DESCRIPTION).

MAINTENANCE

- Perform the periodic service (⇐ 3 - MAINTENANCE) to keep your machine in good working condition. Failure to perform the periodic service may annul the contractual guarantee.

MAINTENANCE LOGBOOK

- The maintenance operations carried out in accordance with the recommendations given in section 3 - MAINTENANCE and the other inspection, servicing or repair operations or modifications performed on the machine must be recorded in a maintenance logbook.
- The entry for each operation shall include details of the date of the works, the names of the individuals or companies having performed them, the type of operation and its frequency, if applicable.
- The part numbers of any machine items replaced shall also be indicated.

LUBRICANT AND FUEL LEVELS

- Use the recommended lubricants and never use contaminated lubricants.
- Machines with a diesel engine:
 - Do not fill the fuel tank when the engine is running.
 - Only fill up the fuel tank in areas specified for this purpose.
 - Do not smoke or approach the machine with a flame, when the fuel tank is open or is being filled.

HYDRAULICS

IMPORTANT

COUNTERBALANCE VALVE: *it is dangerous to change the setting or remove the counterbalance valves or safety valves which may be fitted to your machine's cylinders.*

These operations must only be performed by approved personnel (consult your dealer).

HYDRAULIC ACCUMULATOR (depending on the model): *it is dangerous to disassemble the hydraulic accumulators and their pipes that may be on your machine. These operations must only be performed by approved personnel (consult your dealer).*

- Any work on the hydraulic circuit is forbidden except for the operations described in section 3 - MAINTENANCE.
- Do not attempt to loosen unions, hoses or hydraulic components with the circuit under pressure.

ELECTRICITY

IMPORTANT

*Certain maintenance operations may need electrical accreditation: comply with local, government and national regulations in force.
After each job, make sure that electrical component protection is put back in place (caps, covers, terminal covers, etc.).*

- Do not drop metallic items on the battery or batteries (between the positive and negative terminals).
- Disconnect the battery or batteries before working on the electrical circuit.
- The control panels on the ground and in the platform and all other electrical control boxes must only be opened by authorised personnel.

TILT SENSOR

IMPORTANT

Some machines are fitted with a tilt sensor attached to the turntable (◀ 2 - DESCRIPTION: CONTROL PANEL AND SAFETY DEVICES ON THE GROUND), always carry out an initialisation after removing/refitting the tilt sensor. Refer to the machine repair manual.

Some platforms are fitted with a tilt sensor that is integrated into the ground level control panel (◀ 2 - DESCRIPTION: CONTROL PANEL AND SAFETY DEVICES ON THE GROUND), always calibrate the tilt sensor after removing/refitting or loosening/tightening the ground level control panel, its mounting plates or fixing screws. Refer to the machine repair manual.

WELDING ON THE MACHINE

IMPORTANT

Welding operations on the machine for the purposes of maintenance or repairs must only be carried out by persons authorised by MANITOU.

- Disconnect the battery or batteries before doing any welding on the machine.
- When carrying out electric welding work on the machine, connect the negative cable from the welding equipment directly to the part being welded, so as to avoid high tension current passing through the alternator or the ring gear.
- If the machine is equipped with electronic controls, disconnect them before starting to weld, to avoid the risk of causing irreparable damage to electronic components.

WASHING THE MACHINE

IMPORTANT

When cleaning with a high pressure cleaner, avoid air from entering the engine, the piston rod wiper seals, the hinges, the structural components and the electrical connections, etc.

- Clean the machine or at least the area concerned before any intervention.
- Close and lock (if applicable) all the machine's covers.
- If necessary, protect components likely to be damaged, and in particular the electrical components (variable speed drive, charger) and electrical connections and the injection pump from penetration by water, steam or cleaning products.
- Clean the machine of any traces of fuel, oil or grease.
- After washing:
 - Dry the electrical components.
 - Grease the axles, pins, ring gear, etc.

IF THE MACHINE IS NOT TO BE USED FOR A LONG TIME

INTRODUCTION

⚠ IMPORTANT ⚠

*Procedures to follow if the machine is not to be used for a long time and for starting it up again afterwards must be performed by your dealership.
This period of long-term stoppage must not exceed 12 months.*

- The recommendations below are intended to prevent the machine from being damaged when it is withdrawn from service for a period longer than 6 months.

PREPARATION OF THE MACHINE

- Clean the machine thoroughly.
- Check and repair any leaks of fuel, oil, etc.
- Replace or repair any worn or damaged parts.
- Touch up the paintwork if necessary.
- Make sure the cylinder rods are in the retracted position (if applicable).
- Shut down the machine.
- Release the pressure in the hydraulic circuits.

MACHINES WITH A DIESEL ENGINE: ENGINE PROTECTION

- Fill the fuel tank (↖ 3 - MAINTENANCE).
- Replace the engine oil and oil filter (↖ 3 - MAINTENANCE).
- Replace the coolant (↖ 3 - MAINTENANCE).
- Disconnect the battery and store it in a safe place away from the cold, after charging it to a maximum.
- Block the outlet with waterproof adhesive tape.
- Remove the belt and store it in a safe place.
- Disconnect the engine cut-off solenoid on the injection pump and carefully insulate the connection.

ELECTRICAL MACHINES: BATTERY CHARGE

- In order to preserve battery life and capacity, check them periodically and keep the charge level constant (↖ 2 - DESCRIPTION).
- Do not leave the battery charger connected during a lightning storm.

PROTECTING THE MACHINE

- Protect cylinder rods that will not be retracted from corrosion.
- Wrap the wheels.

NOTE: if the machine is to be stored outdoors, cover it with a waterproof tarpaulin.

IMPORTANT

Make sure the area is adequately ventilated before starting machines with a diesel engine.

- Remove the protection from the cylinder rods and wheels.
- Check the hydraulic oil ( 3 - MAINTENANCE).
- Machines with a diesel engine:
 - Refit and reconnect the battery.
 - Remove the waterproof adhesive tape from the exhaust outlet.
 - Clean the fuel tank (replace the fuel), replace the fuel filter(s) ( 3 - MAINTENANCE).
 - Refit the belt and adjust its tension ( 3 - MAINTENANCE).
 - Reconnect the engine cut-off solenoid.
 - Start the engine, following the safety instructions and regulations.
- Perform the daily maintenance ( 3 - MAINTENANCE).
- Lubricate the machine completely ( 3 - MAINTENANCE).
- Carry out all the lifting system's hydraulic movements right up to the limit switches for each cylinder.

DISPOSING OF THE MACHINE



Consult your dealer before disposing of the machine.

RECYCLING OF MATERIALS

METALS

- Metals are 100% recoverable and recyclable.

PLASTICS

- Plastic parts are identified with a marking in accordance with current regulations.
- A limited range of materials is used to simplify the recycling process.
- The majority of the plastic components are made of "thermoplastic" plastics, which are easily recycled by melting, granulating or grinding.

RUBBER

- Tyres and seals can be ground for use in cement manufacture or to obtain reusable granules.

GLASS

- Glass items can be removed and collected for processing by glaziers.

ENVIRONMENTAL PROTECTION

By entrusting the maintenance of your machine to the MANITOU network, the risk of pollution is limited and the contribution to environmental protection is made.

WORN OR DAMAGED PARTS

- Do not dump them in the countryside.
- MANITOU and its network have signed-up to a scheme of environmental protection through recycling.

USED OIL

- The MANITOU network organises the collection and processing of used oil.
- By handing over your waste oil to MANITOU, the risk of pollution is limited.

USED BATTERIES

- Do not throw away batteries, as they contain metals that are harmful for the environment.
- Return them to the MANITOU network or any other approved collection point.

NOTE: MANITOU aims to manufacture machines that provide the best performance and limit polluting emissions.

2 - DESCRIPTION

2 - DESCRIPTION

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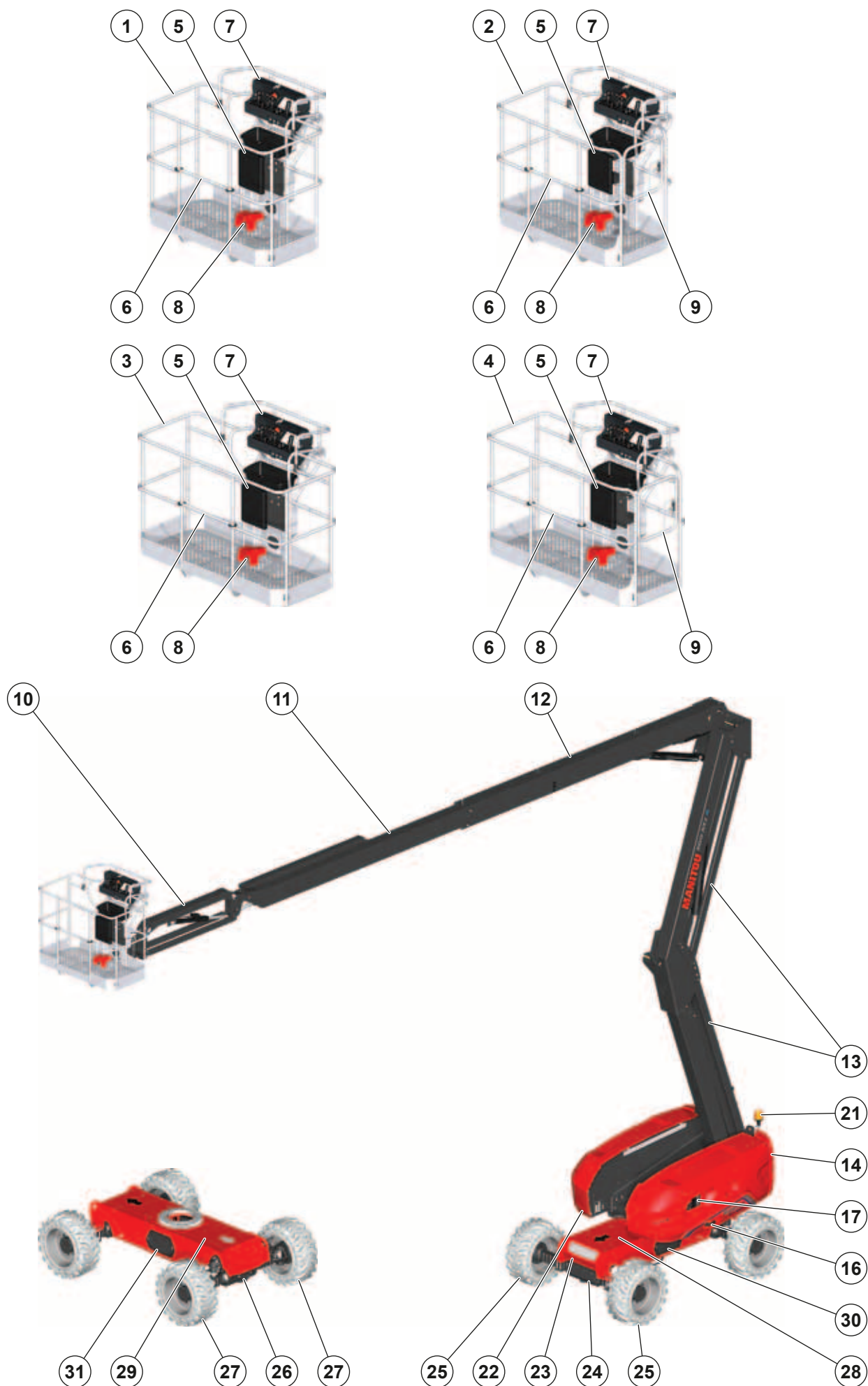
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- 2- STANDARD PLATFORM WITH GATE (OPTION)
- 3- WIDE PLATFORM WITHOUT GATE (OPTION)
- 4- WIDE PLATFORM WITH GATE (OPTION)
- 5- STORAGE BOX
- 6- SLIDING MID-RAIL
- 7- CONTROL PANEL IN THE PLATFORM
- 8- FOOT SWITCH
- 9- GATE
- 10- JIB
- 11- TELESCOPIC ARM
- 12- MAIN ARM
- 13- SECONDARY ARM
- 14- TURNTABLE
- 15- TURNTABLE LOCKING PIN
- 16- RIGHT TURNTABLE COVER
- 17- GROUND CONTROL PANEL
- 18- HORN
- 19- BATTERY CUT-OFF
- 20- BATTERY CHARGER PLUG
- 21- ORANGE ROTATING BEACON LIGHT
- 22- LEFT TURNTABLE COVER
- 23- FRAME
- 24- REAR AXLE
- 25- REAR DRIVING WHEELS
- 26- OSCILLATING FRONT AXLE
- 27- FRONT DRIVING AND STEERING WHEELS
- 28- REAR FRAME COVER
- 29- FRONT FRAME COVER
- 30- RIGHT FRAME COVER
- 31- LEFT FRAME COVER



Note: front, rear, left and right are defined in MACHINE OPERATION: TRANSPORT/WORKING POSITION.

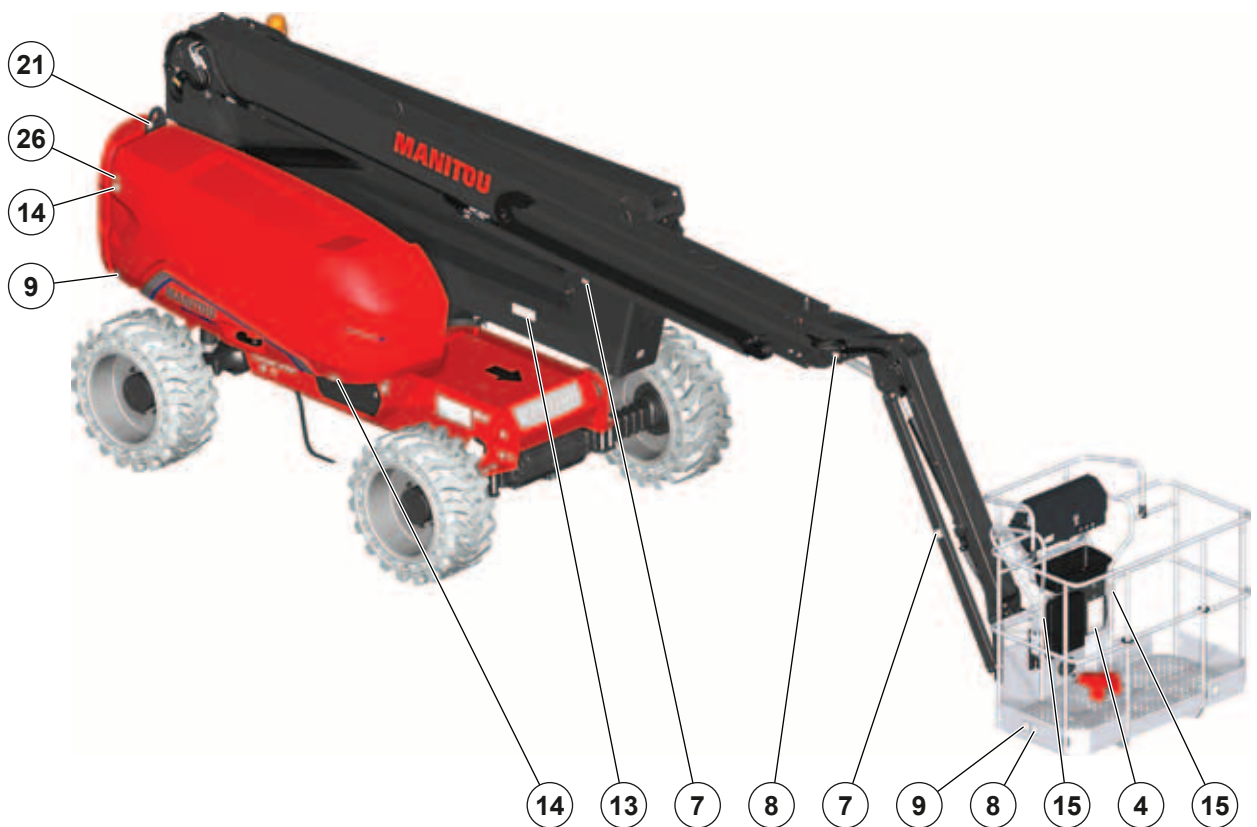
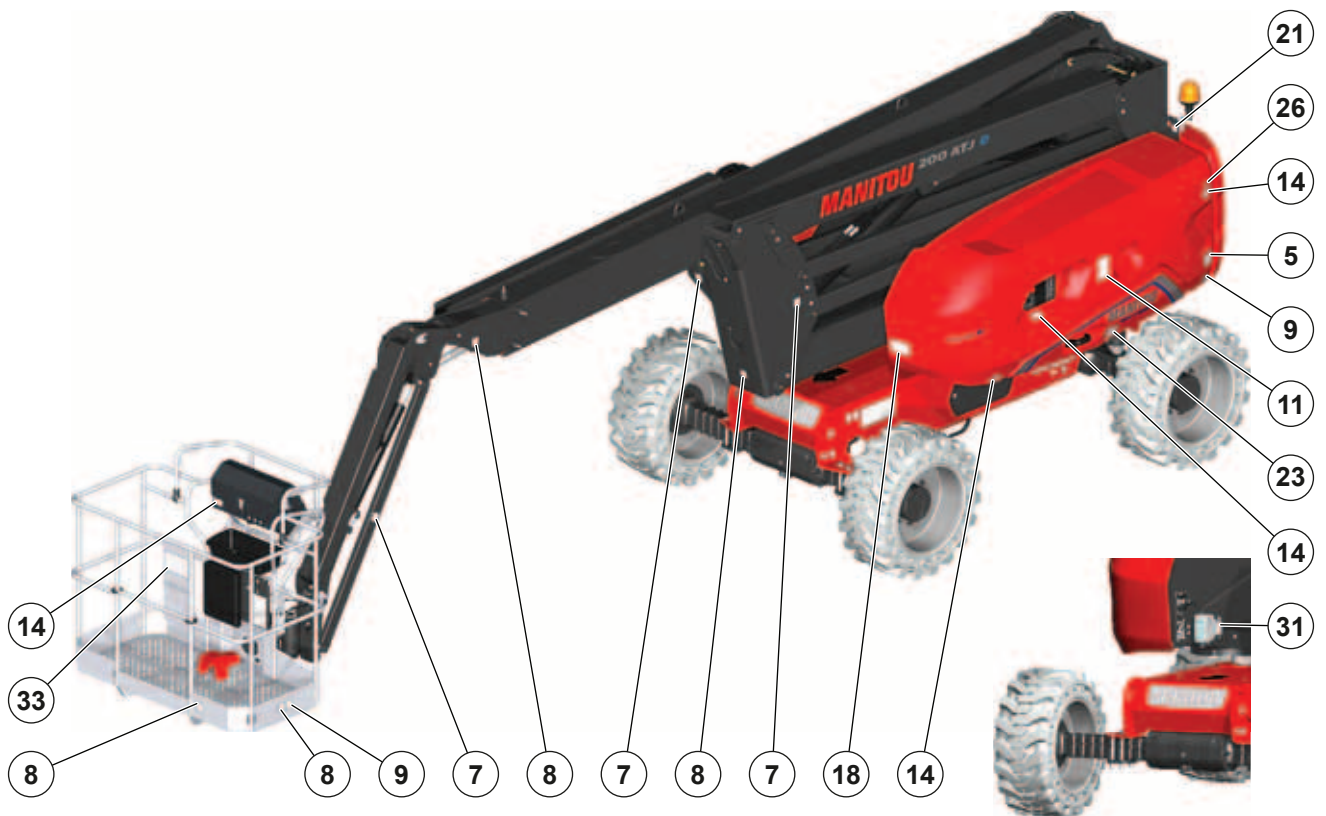


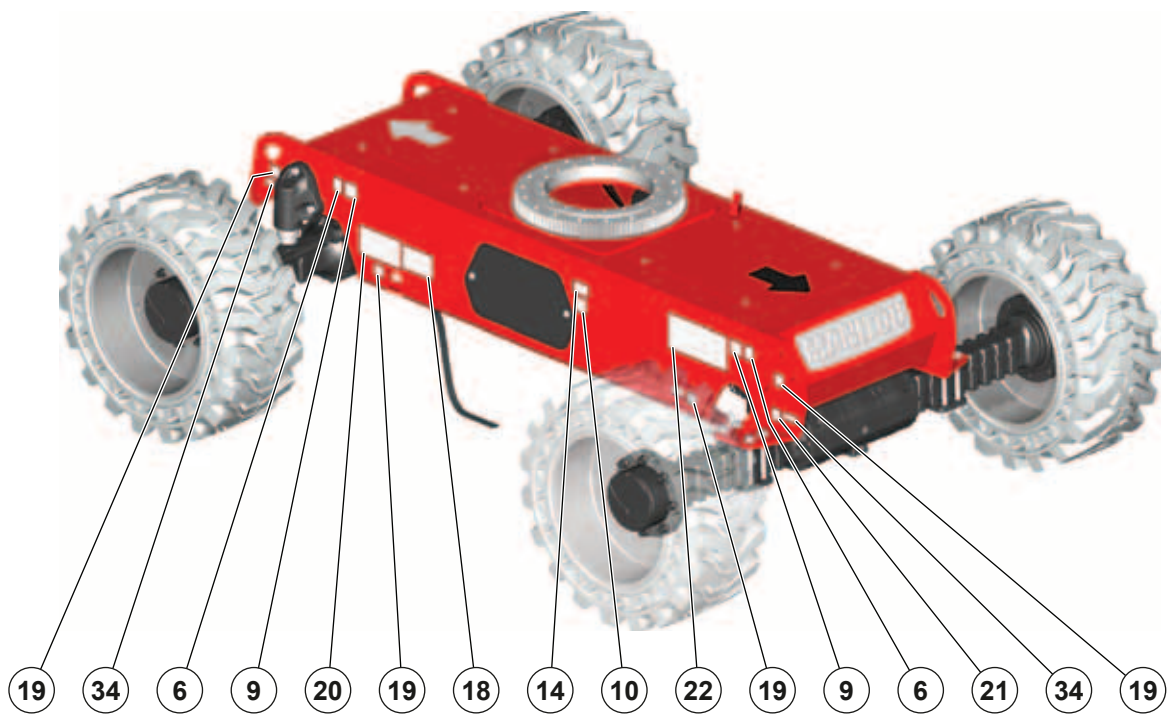
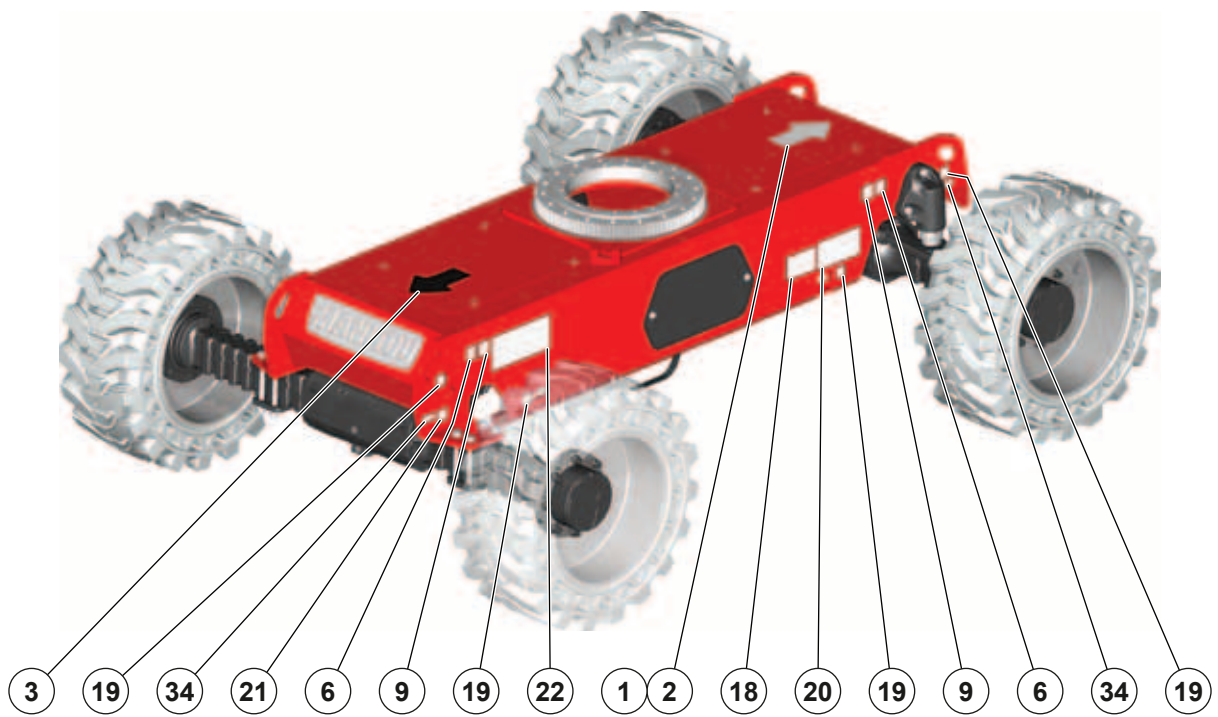
STICKERS

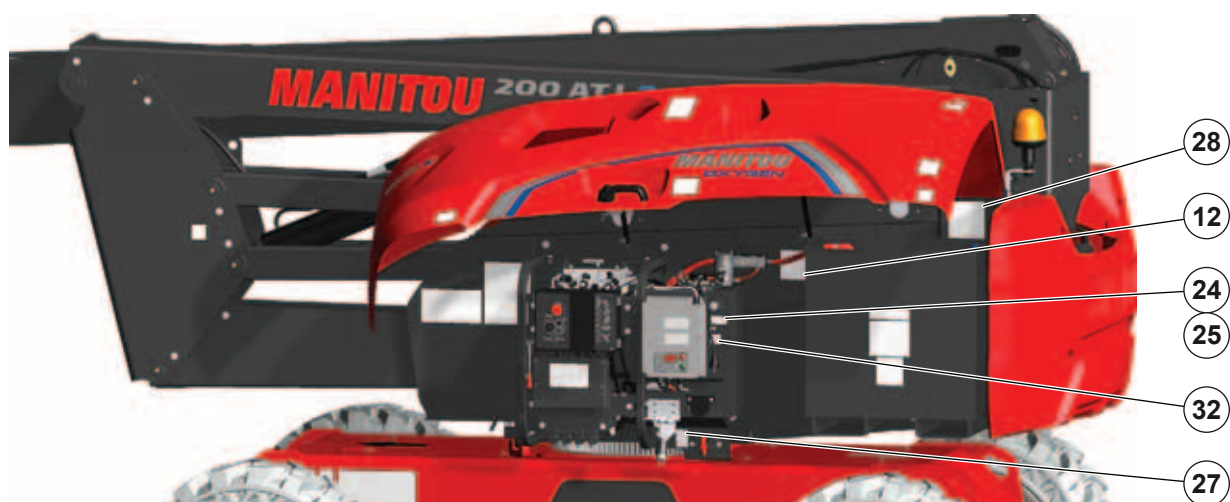
⚠ IMPORTANT ⚠

*Clean all stickers so that they are legible.
Any stickers that are illegible or damaged must be replaced.
Check that the stickers are present after replacing any spare parts.*

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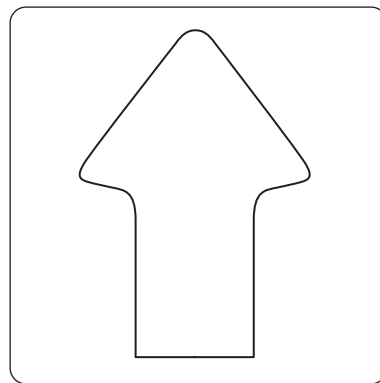




1- WHITE ARROW (STANDARD)

Part No. 833553

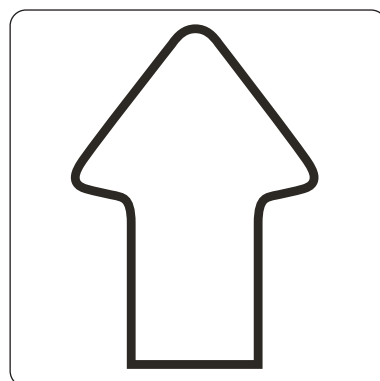
Indicates forward driving direction when the turntable and platform are in neutral position,  OPERATING THE MACHINE: TRANSPORT/WORKING POSITION.



2- WHITE ARROW WITH BLACK STRIPE (OPTION)

Part No. 52588045

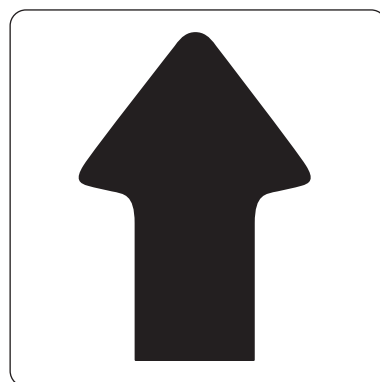
Indicates forward driving direction when the turntable and platform are in neutral position,  OPERATING THE MACHINE: TRANSPORT/WORKING POSITION.



3- BLACK ARROW

Part No. 833554

Indicates reverse driving direction when the turntable and platform are in neutral position,  OPERATING THE MACHINE: TRANSPORT/WORKING POSITION.

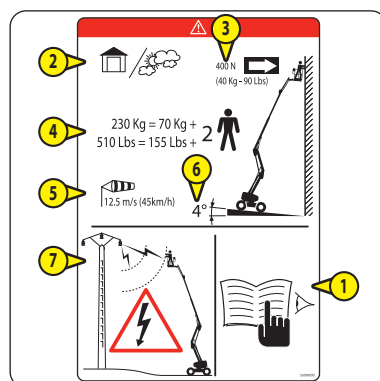


4- PLATFORM SAFETY INSTRUCTIONS

Part No. 52660095

Indicates:

- ① The instruction manual must be read before using the machine.
- ② The possibility of using the machine outside and inside.
- ③ Maximum manual force.
- ④ Maximum load capacity in the platform.
- ⑤ Maximum wind speed when operating outside.
- ⑥ Maximum frame tilt in working position.
- ⑦ The risk of electric shock.

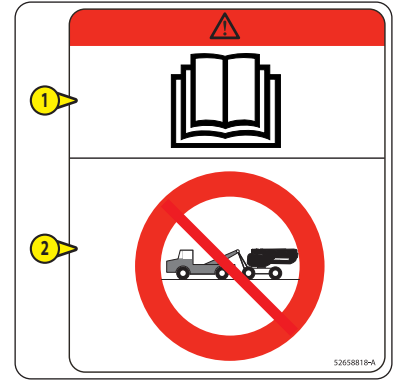


5- GROUND SAFETY INSTRUCTIONS

Part No. 52658818

Indicates:

- ① The instruction manual must be read before using the machine.
- ② The machine must not be towed without the freewheeling procedure described in the instruction manual being applied.



6- WHEEL LOAD

Part No. 683963

Indicates the maximum ground load per wheel.



7- DANGER OF CRUSHING HANDS

Part No. 676988

Indicates that it is strictly forbidden to place your hands or any other part of the body in the lifting mechanism components.



8- DANGER KEEP AWAY

Part No. 679450

Indicates that it is strictly forbidden to stand under the lifting mechanism and in the machine's operating area.



9- DANGER OF CRUSHING

Part No. 679452

Indicates that it is strictly prohibited to stand in this area when the machine is moving. Components bearing this sticker could crush you.



10- DANGER HOT COMPONENT

Part No. 683112

Indicates that there is a high risk of burns in the vicinity.



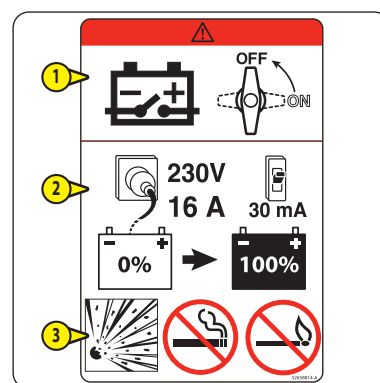
11- BATTERY CHARGE SAFETY

Part No. 52658814

Indicates:

- ① That the battery cut-off should be put in the OFF position "OFF" before connecting the battery charger.
- ② The specifications of the power source for connecting the battery charger.
- ③ The risk of explosion that may be caused by a flame when charging the batteries. Do not smoke when charging the batteries.

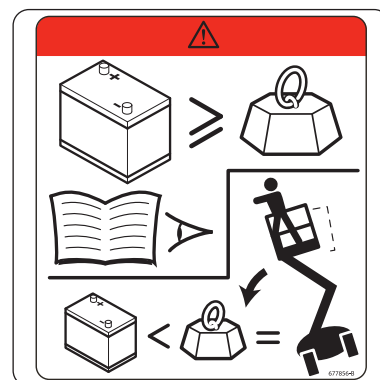
Note: ⚠ CHARGING THE BATTERIES.



12- BATTERY REPLACEMENT

Part No. 677856

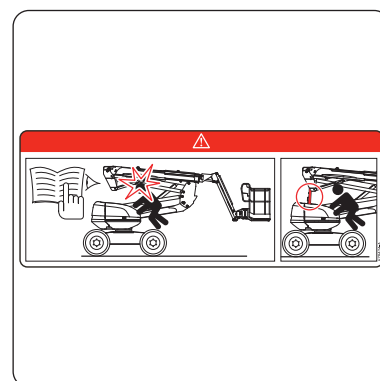
Indicates that the weight of the new batteries must be greater than or equal to those you are replacing. If this rule is not respected, the stability of the machine will be compromised.



13- SAFETY STRUT

Part No. 678424

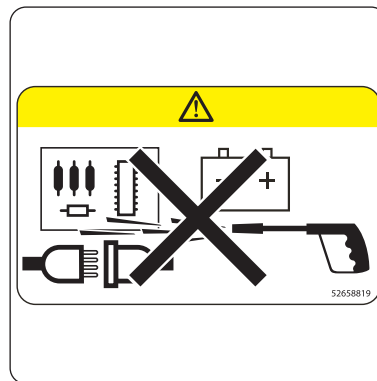
Indicates that the safety strut must be used when working under the secondary jib in the raised position, ⚠ 3 - MAINTENANCE: OCCASIONAL OPERATIONS.



14- WASHING INSTRUCTION

Part No. 52658819

Indicates that it is strictly forbidden to direct a pressure washer nozzle over the control panels and electrical components.



15- SAFETY HARNESS ATTACHMENT POINT

Part No. 834438

Indicates the location of safety harness attachment points,  SAFETY COMPONENTS: SAFETY HARNESS ATTACHMENT POINTS.



16- BACKUP PUMP

Part No. 52658821

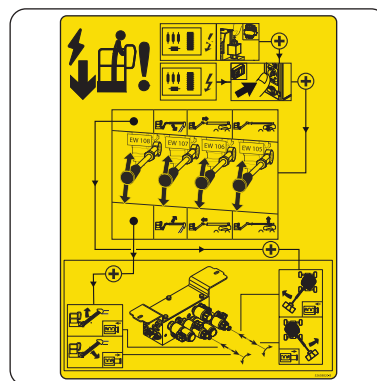
Indicates the procedure to be followed for using the backup pump,  EMERGENCY CONTROLS.



17- EMERGENCY CONTROL PROCEDURE

Part No. 52658820

Indicates the procedure to be followed for using the emergency controls,  EMERGENCY CONTROLS.



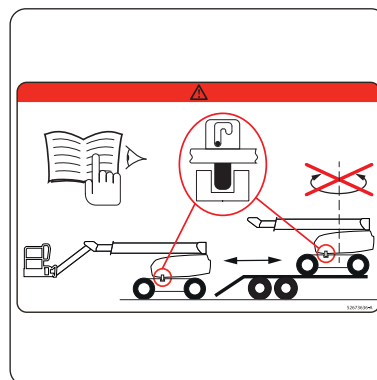
18- TURNTABLE LOCKING

Part No. 52673636

Indicates that the turntable must be locked:

- Before loading the machine onto a transport vehicle.
- Before unloading it.
- Once on the transport vehicle.

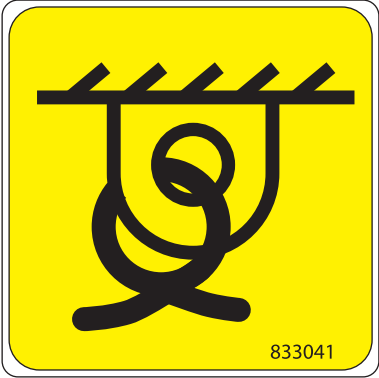
Note  TRANSPORT AND LIFTING: TRANSPORT INSTRUCTIONS.



19- ANCHORAGE POINT

Part No. 833041

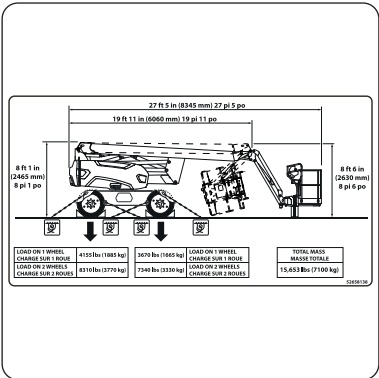
Indicates the location of the machine's anchorage points,  TRANSPORT AND LIFTING: TRANSPORT INSTRUCTIONS.



20- ANCHORING

Part No. 52658138

Indicates the main features that are useful when anchoring the machine,  TRANSPORT AND LIFTING: TRANSPORT INSTRUCTIONS.



21- LIFTING POINT

Part No. 833291

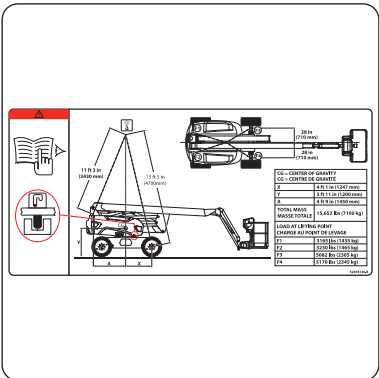
Indicates the location of the machine's lifting points,  TRANSPORT AND LIFTING: LIFTING INSTRUCTIONS.



22- LIFTING

Part No. 52658140

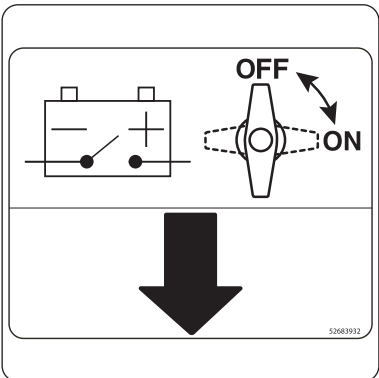
Indicates the main features that are useful when lifting the machine,  TRANSPORT AND LIFTING: LIFTING INSTRUCTIONS.



23- BATTERY CUT-OFF LOCATION

Part No. 52683932

Indicates the location of the battery cut-off.



24- HYDRAULIC OIL (STANDARD)

Part No. 52692698

Indicates:

- That the tank is intended to contain only hydraulic oil.
- The type of hydraulic oil in the tank.

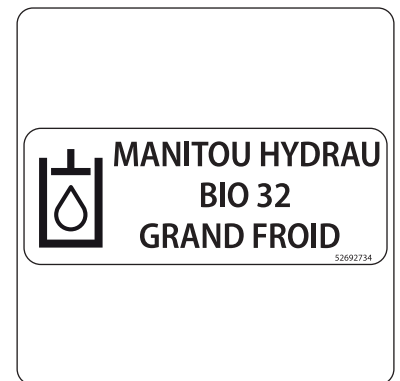


25- ORGANIC HYDRAULIC OIL (OPTION)

Part No. 52692734

Indicates:

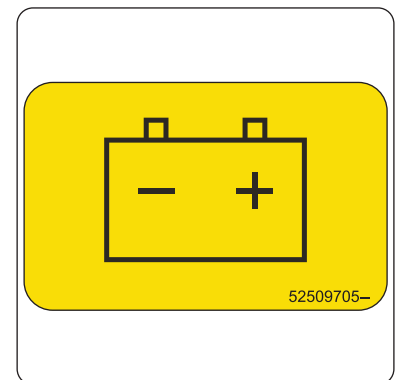
- That the tank is intended to contain only hydraulic oil.
- The type of hydraulic oil in the tank.



26- BATTERY LOCATION

Part No. 52509705

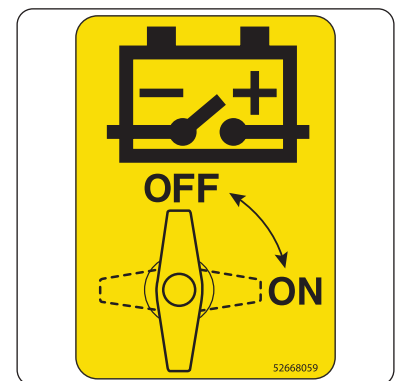
Indicates the location of a battery.



27- BATTERY CUT-OFF

Part No. 52668059

Indicates the location, the OFF position "OFF" and the ON position "ON" of the battery cut-off.

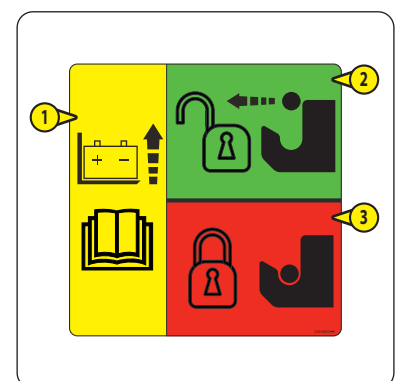


28- BATTERY LIFTING

Part No. 52658835

Indicates:

- 1 That the instruction manual must be read before replacing the battery.
- 2 That the battery can be taken out of its housing, < OCCASIONAL MAINTENANCE: REPLACE BATTERIES.
- 3 That the battery cannot be taken out of its housing, < OCCASIONAL MAINTENANCE: REPLACE BATTERIES.

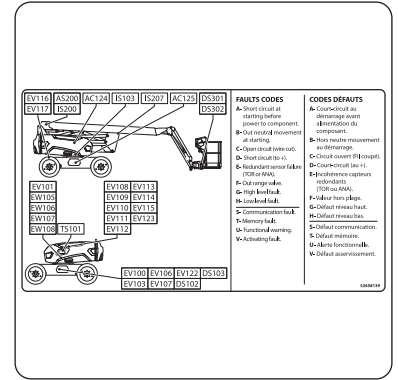


29- FAULT CODES

Part No. 52658139

Indicates the fault codes and location of the electrical components:

- Variable controls (AC).
- Sensors (AS, DS, IS, TS).
- Electrovalves (EV).
- Solenoid coils (EW).

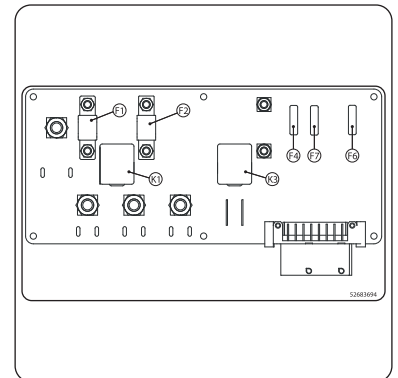


30- FUSES AND RELAYS

Part No. 52683694

Indicates the location of the fuses and relays.

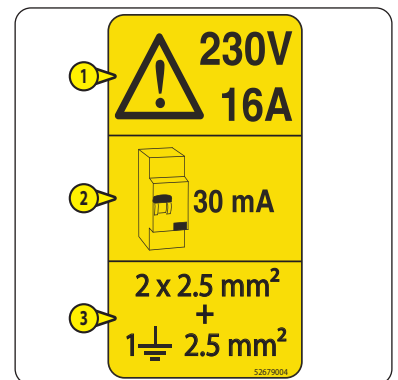
Note: remove the cover with the sticker on to access the fuses and relays.



31- POWER SUPPLY FOR 230 V SOCKET IN THE PLATFORM (OPTION) Part No. 52679004

Indicates:

- 1 The voltage and amperage of the power source.
- 2 That the electric circuit is protected by a 30 mA ground fault circuit interrupter.
- 3 The cross-section of the electric circuit cables.

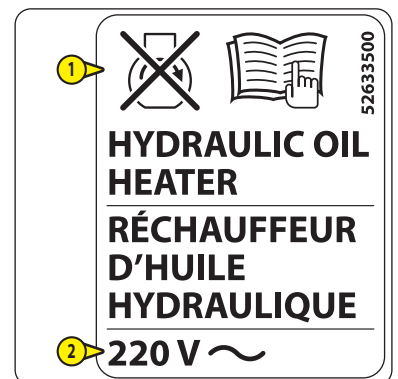


32- HYDRAULIC OIL HEATER (OPTION)

Part No. 52633500

Indicates the location of the plug of the hydraulic oil heater and:

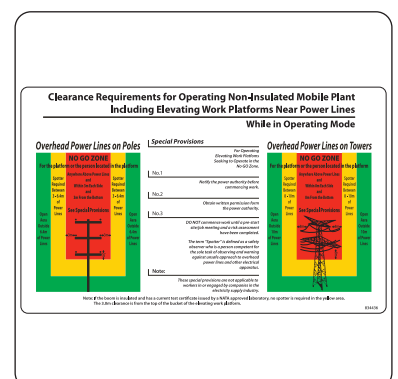
- 1 The machine must be switched off and the instruction manual must be read before connecting the hydraulic oil heater.
- 2 The voltage of the power source.



33- ELECTRICAL SAFETY DISTANCE

Part No. 834436

Indicates the different areas for operating with elevating work platforms near power lines.



34- USE MANITOU TYRES ONLY

Part No. 834437

Indicates that the operator must use the tyres defined by Manitou.



SPECIFICATIONS

LOAD SPECIFICATIONS			±
Machine			
- Maximum load capacity the platform.	kg (lbs)	230 (507)	-
- Maximum wind speed when operating outside	km/h	45	-
- Maximum number of people in the platform during indoor use/outdoor use		2/2	-
- Unladen machine weight	kg (lbs)	7,100 (15,653)	2%
- Maximum authorised frame tilt	°	4	0.1%
- Maximum slope accessible with 100 kg (220 lbs) in the platform	%	40	1
- Maximum authorised manual force	N	400	-
Wheels			
- Load on one front wheel in transport position	kg (lbs)	3,770 (8,310)	2%
- Load on one rear wheel in transport position	kg (lbs)	3,330 (7,340)	2%
- Maximum load on one wheel in working position	kg (lbs)	4,000 (8,820)	2%
- Bearing surface on hard/soft ground	cm ²	366 / 820	5%
- Punching on hard/soft ground	daN/cm ²	10,9 / 4,9	5%
SPEEDS AND MOVEMENTS			±
Driving speeds			
- Working speed	km/h	0.65	0.05
- Tortoise speed	km/h	2.5	0.2
- Hare speed forwards (driving direction: white arrow on the frame)	km/h	5.3	0.5
- Hare speed backwards (driving direction: black arrow on the frame)	km/h	3.5	0.2
Main arm (telescopic arm extended)			
- Unladen/laden lifting	s	32 / -	2
- Unladen/laden lowering	s	32 / -	2
Main arm (telescopic arm retracted)			
- Unladen/laden lifting	s	23 / -	2
- Unladen/laden lowering	s	23 / -	2
Secondary arm			
- Unladen/laden lifting	s	24 / -	2
- Unladen/laden lowering	s	24 / -	2
Telescopic arm			
- Unladen/laden extension	s	24 / -	2
- Unladen/laden retraction	s	24 / -	2
Jib			
- Unladen/laden lifting	s	22 / -	2
- Unladen/laden lowering	s	22 / -	2
Turntable			
- 350° rotation (telescopic arm extended/retracted)	s	132 / 88	5
Platform			
- Rotation to the right/to the left	s	6 / 6	2

ENGINE/TRANSMISSION			±
Wheel motor			
- Type		Electric - BEST MOTOR	-
- Quantity		1	-
- Power	kW	8.5	-
- Voltage	V	48	-
- S2 (temporary operation)	min.	30	-
- S3 (alternate operation)	%	40	-
Reduction gearbox			
- Type		DANA	-
- Reduction ratio		145	-
Axles			
- Type		DANA SPICER	-
- Reduction ratio		145	-
- Pulling force	daN	-	-
- Front axle differential		45% limited slip	-
- Front axle oscillation angle	°	± 2.8	-
- Rear axle differential		Hydraulic locking 100%	-
Steering wheels front/rear		2 / 0	-
Driving wheels front/rear		2 / 2	-
Wheels			
- Type		Non-marking - CAMSO	-
- Dimensions (external Ø x width)	mm	910 x 365	-
- Inflation		Solid tyre	-
BRAKES			±
Type		Negative	-
Type of control		Hydraulics	-
Braked wheels front/rear		0 / 2	-
Release of brakes (freewheeling)		Manual	-
Braking torque	N.m	-	5%
HYDRAULIC CIRCUIT			±
Electric pump			
- Type of motor		Electric - BEST MOTOR	-
- Power	kW	16	-
- Voltage	V	48	-
- Current	A	370	-
- S2 (temporary operation)	min.	5	2%
- S3 (alternate operation)	%	10	2
- Type of pump		- BOSCH REXROTH Variable displacement	-
- Maximum cylinder capacity	cm ³	18	-
Distributor			
- Type		DANFOSS	-
- Maximum pressure	bar	250	5
Turntable rotation motor			
- Type		BONFIGLIOLI	-
- Reduction ratio		1:7.2	-
Filtering			
- Suction	µm	125	-
- Pressure	µm	10	-

ELECTRIC CIRCUIT			±
48 V batteries (first fit)			
- Type		EXIDE	-
- Quantity		2	-
- Capacity C5	Ah	460	-
- Capacity C20	Ah	-	-
- Rated voltage	V	2x 24	-
- EARL cycle		-	-
12 V battery (first fit)			
- Type		EXIDE	-
- Quantity		1	-
- Capacity C5	Ah	74	-
- Capacity C20	Ah	-	-
- Rated voltage	V	12	-
Battery charger (first fit)			
- Type		ZIVAN	-
- Maximum current	A	60	-
- Rated voltage	V	48	-
- Type of phase progression (load curve)		-	-
BACKUP PUMP			±
- Type		Electric	-
- Cubic capacity	cm ³	2	-
- Power	kW	1.7	-
- Voltage	V	12	-
- Pressure 150 bars	A	220	-
DIMENSIONS			±
Standard platform without gate and standard platform with gate (option)			
- External dimensions (length x width)	mm	1,500 x 765	1%
- Floor dimensions (length x width)	mm	-	1%
Wide platform without gate (option) and wide platform with gate (option)			
- External dimensions (length x width)	mm	1,800 x 765	1%
- Floor dimensions (length x width)	mm	-	1%
Platform rotation angle to the right/to the left	°	90 / 90	1%
Jib tilting angle up/down	°	65 / 60	1%
Turntable rotation angle	°	350	1%
Other dimensions: DIMENSIONS AND MOVEMENT AMPLITUDE			
NOISE AND VIBRATION			±
Sound power level LwA	dB	-	-
Vibrations affecting body in the platform			
- Average quadratic values for the body	m/s ²	-	-

DIMENSIONS AND MOVEMENT AMPLITUDE

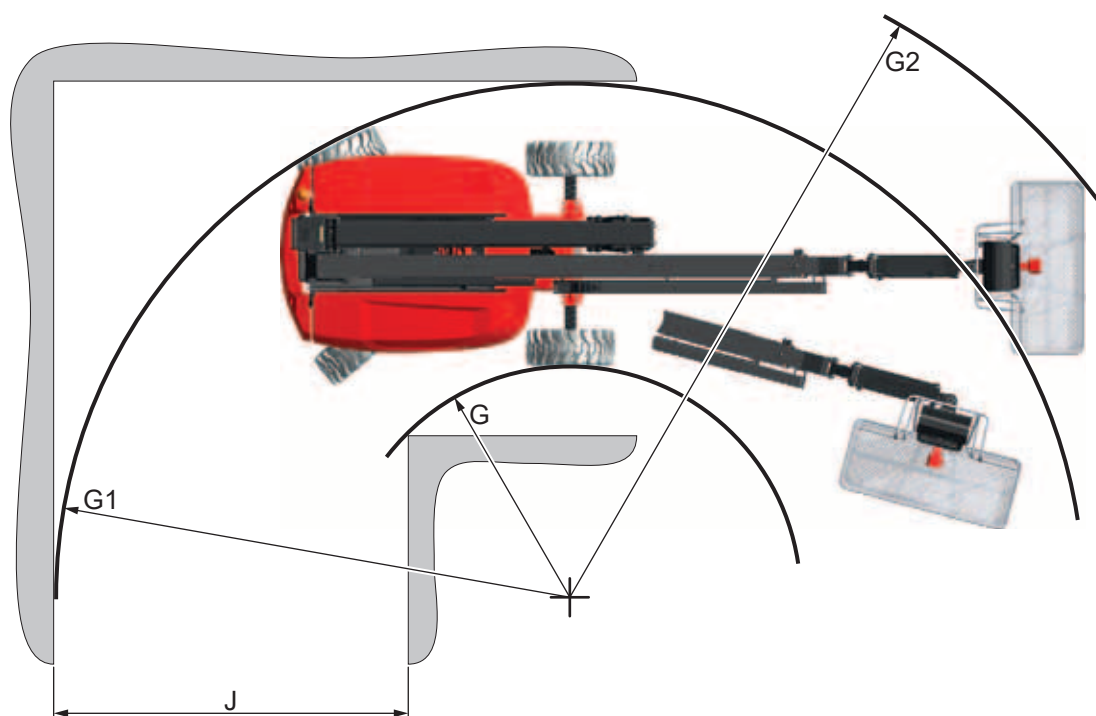
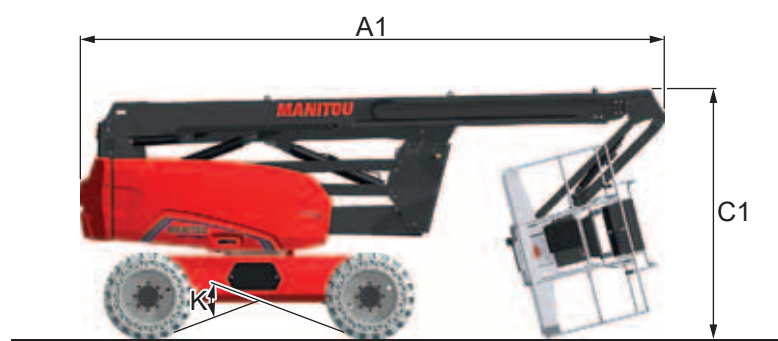
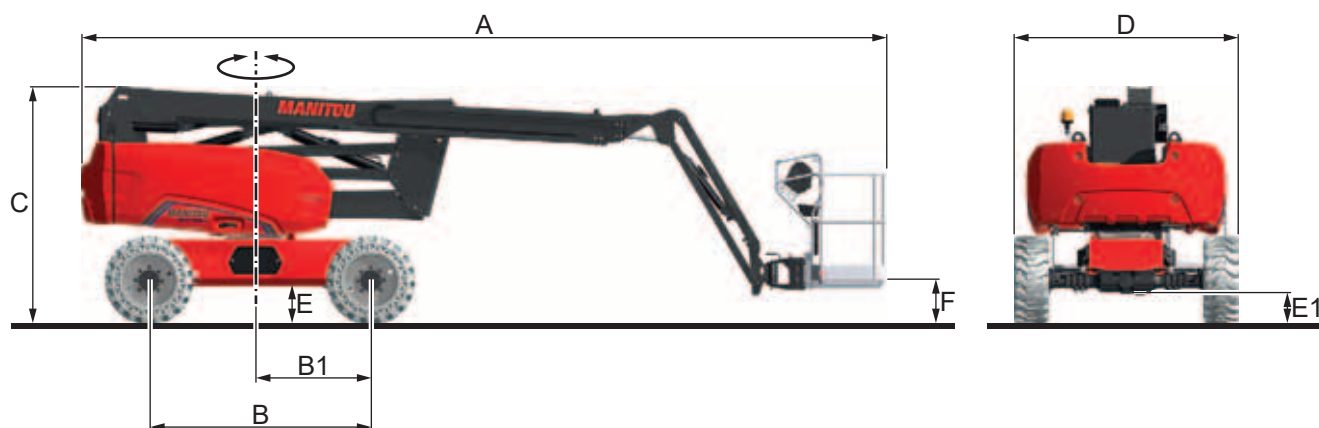
A	mm	8,345
A1	mm	6,060
B	mm	2,300
B1	mm	1,200
C	mm	2,465
C1	mm	2,420 (1) / 2,630 (2)

D	mm	2,320
E	mm	385
E1	mm	325
F	mm	455
G	mm	2,420
G1	mm	5,310

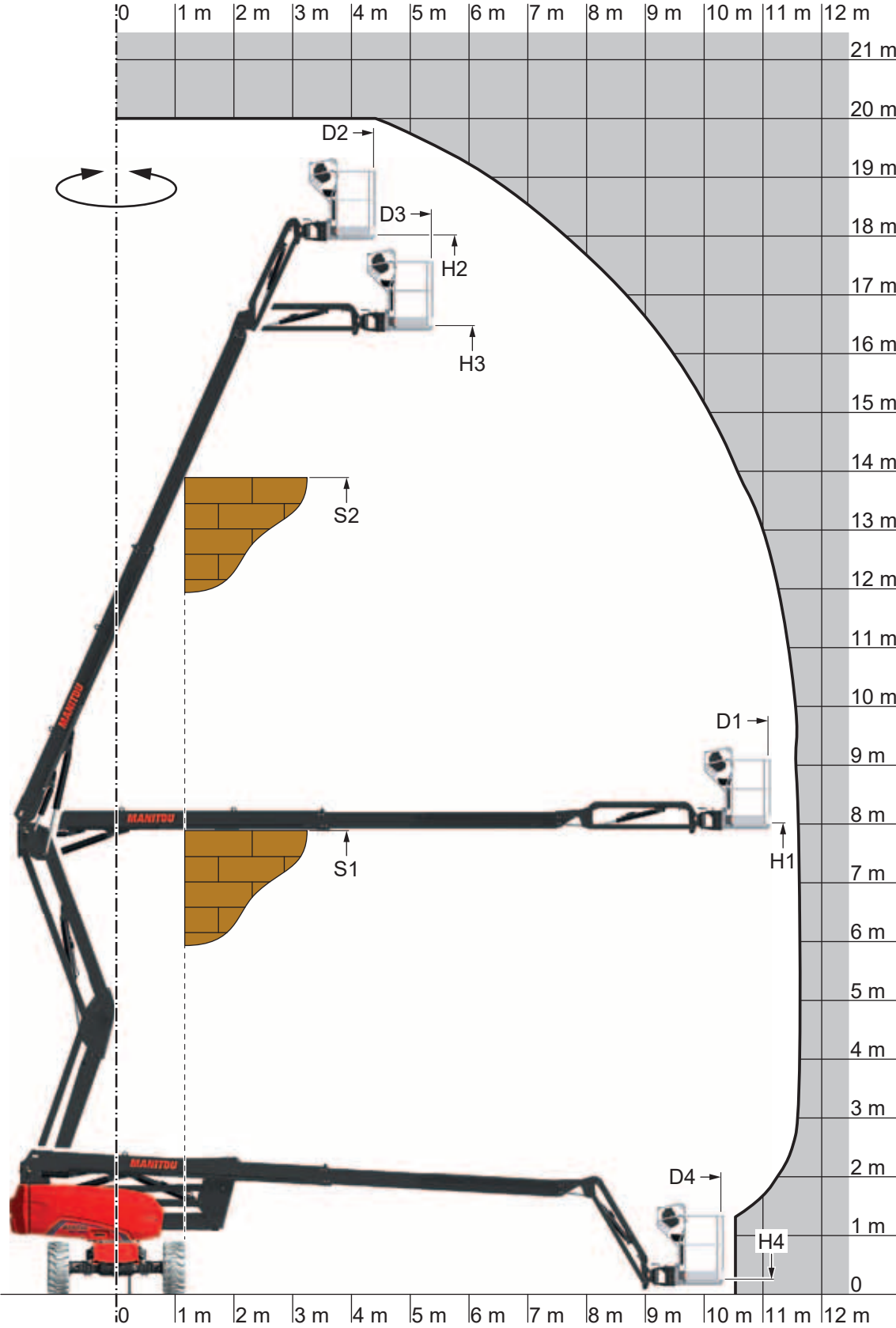
G2	mm	6,745 (1) / 6,835 (2)
I	mm	645
J	mm	3,755
K	°/%	40.3 / 85

(1) Standard platform without gate and with gate (option).

(2) Wide platform without gate (option) and with gate (option).



H1	mm	8,005	S1	mm	7,910
D1	mm	11,075			
H2	mm	18,000	S2	mm	13,900
D2	mm	4,375			
H3	mm	16,470			
D3	mm	5,360			
H4	mm	250			
D4	mm	10,280			



SAFETY COMPONENTS

SLIDING MID-RAIL

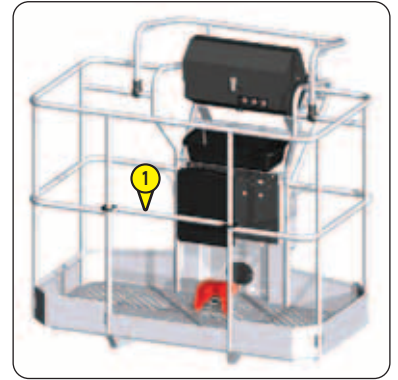
Standard platform without gate and wide platform without gate (option).

⚠ IMPORTANT ⚠

*Do not attach the sliding mid-rail in the high position.
Make sure that the sliding mid-rail is in the low position before using the machine.*

The platform has a sliding mid-rail ①.

- Raise the sliding mid-rail and keep it raised to get in and out of the platform.
- Note: the illustration shows a standard platform without gate.



SLIDING MID-RAIL AND GATE

Standard platform with gate (option) and wide platform with gate (option).

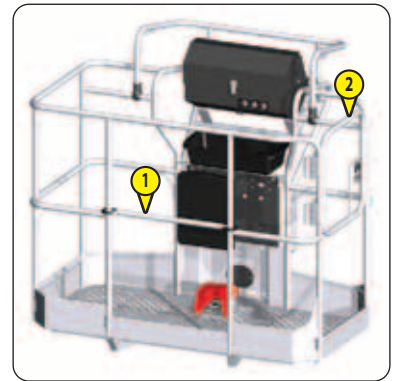
⚠ IMPORTANT ⚠

*Do not attach the sliding mid-rail in the high position.
Make sure that the sliding mid-rail is in the low position before using the machine.
Make sure that the gate is properly closed before using the machine.*

The platform has a sliding mid-rail ① and a gate ② with a locking handle.

- Raise the sliding mid-rail and keep it raised to get in and out of the platform.
- or
- Get into and out of the platform through the gate.

Note: the illustration shows a standard platform with gate (option).



SAFETY HARNESS ATTACHMENT POINTS

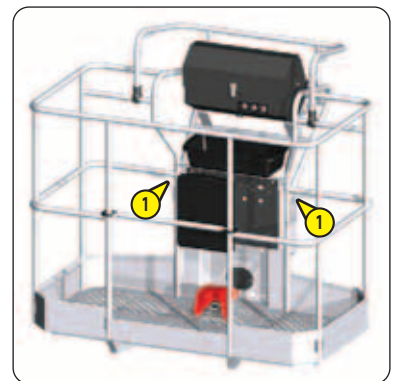
⚠ IMPORTANT ⚠

Only one operator/occupant is permitted to use each attachment point.

- Attach the safety harnesses to the attachment points ① in the platform.

Note: 2 attachment points,  STICKERS: SAFETY HARNESS ATTACHMENT POINTS.

Note: the illustration shows a standard platform without gate.

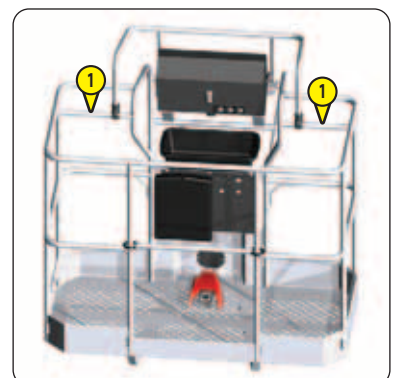


HANDRAILS

⚠ IMPORTANT ⚠

- When using the machine:*
- Do not hold onto the platform railings.
 - Hold on to the handrails ①.

Note: the illustration shows a standard platform without gate.



TURNTABLE LOCKING PIN

Locking the turntable prevents it from rotating.

Position **A**: the turntable is unlocked.

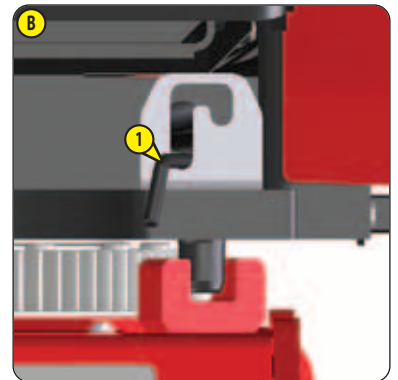
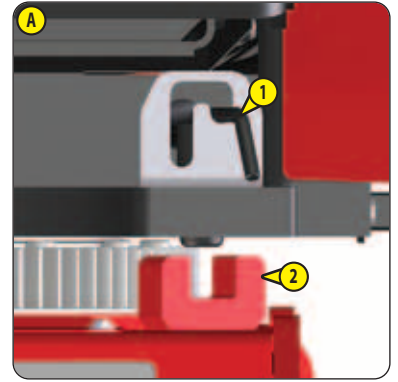
Position **B**: the turntable is locked.

LOCK THE TURNTABLE

- Align the pin **1** and the chassis **2** notch.
- Pull the pin and turn it to the left.
- Push it into the chassis notch (position **B**).

UNLOCK THE TURNTABLE

- Pull the pin **1** and turn it to the right.
- Push it into position **A**.

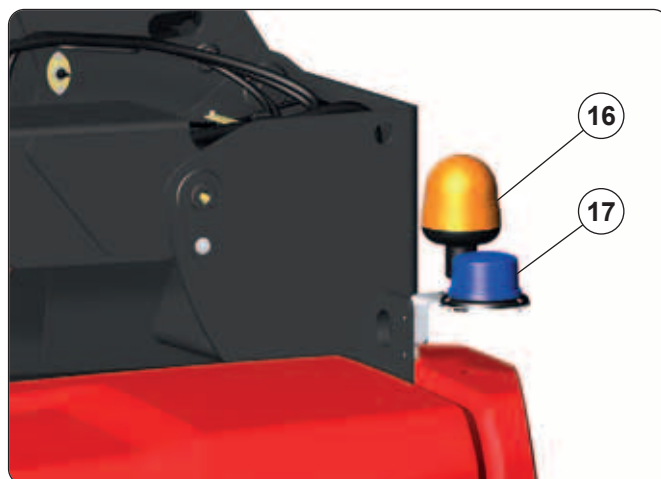
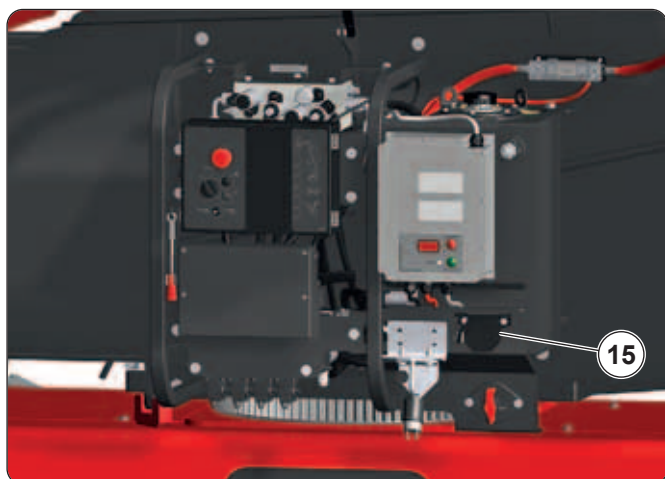
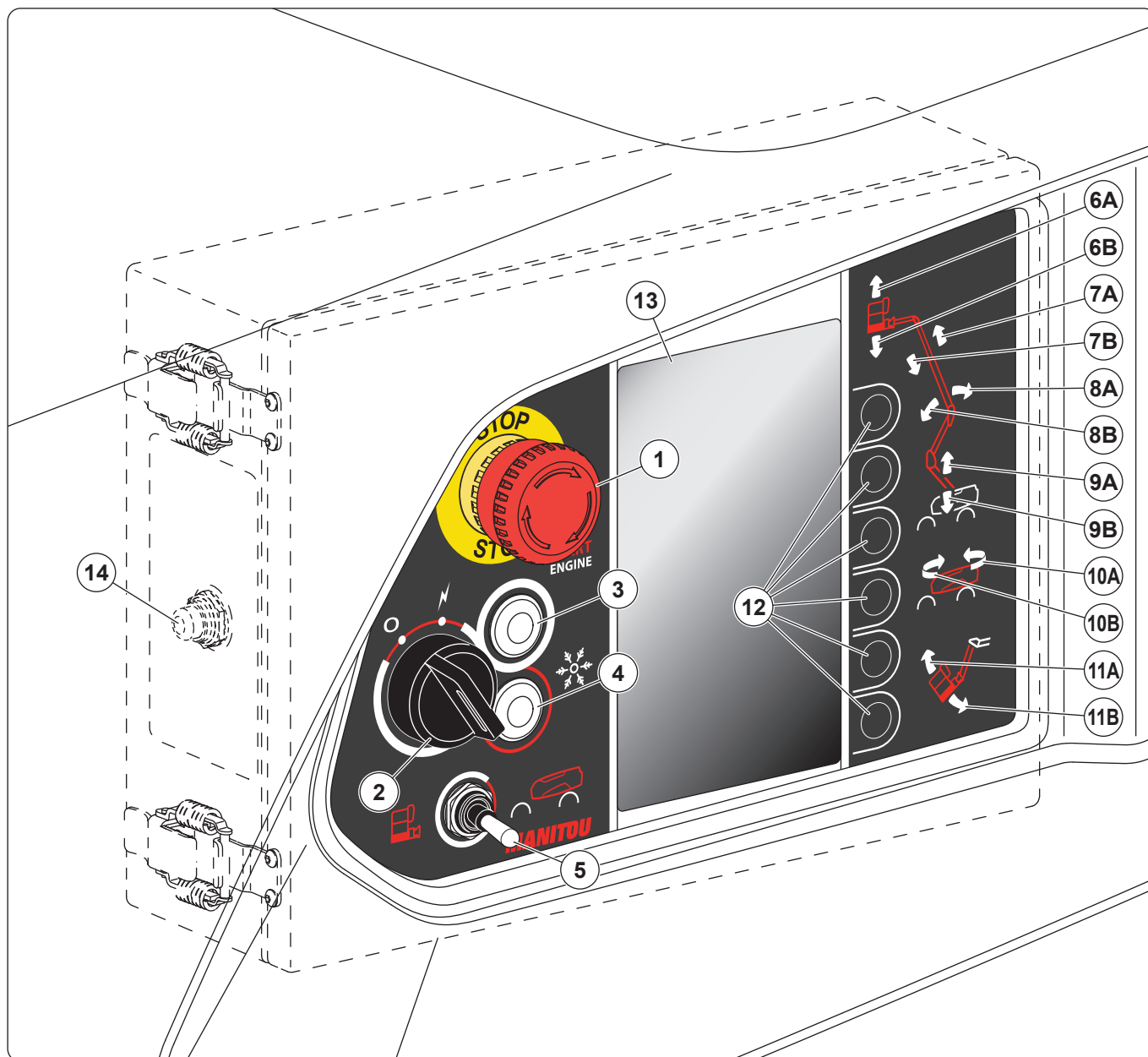


CONTROL PANEL AND SAFETY DEVICES AT GROUND LEVEL

⚠ IMPORTANT ⚠

This machine is equipped with an integrated tilt sensor in the ground control panel (→ 1 - OPERATING AND SAFETY INSTRUCTIONS: MACHINE MAINTENANCE INSTRUCTIONS).

Left and right are defined in MACHINE OPERATION: TRANSPORT/WORKING POSITION.

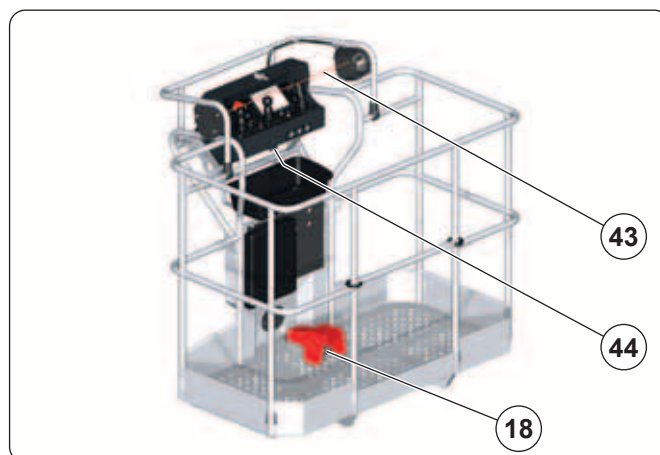
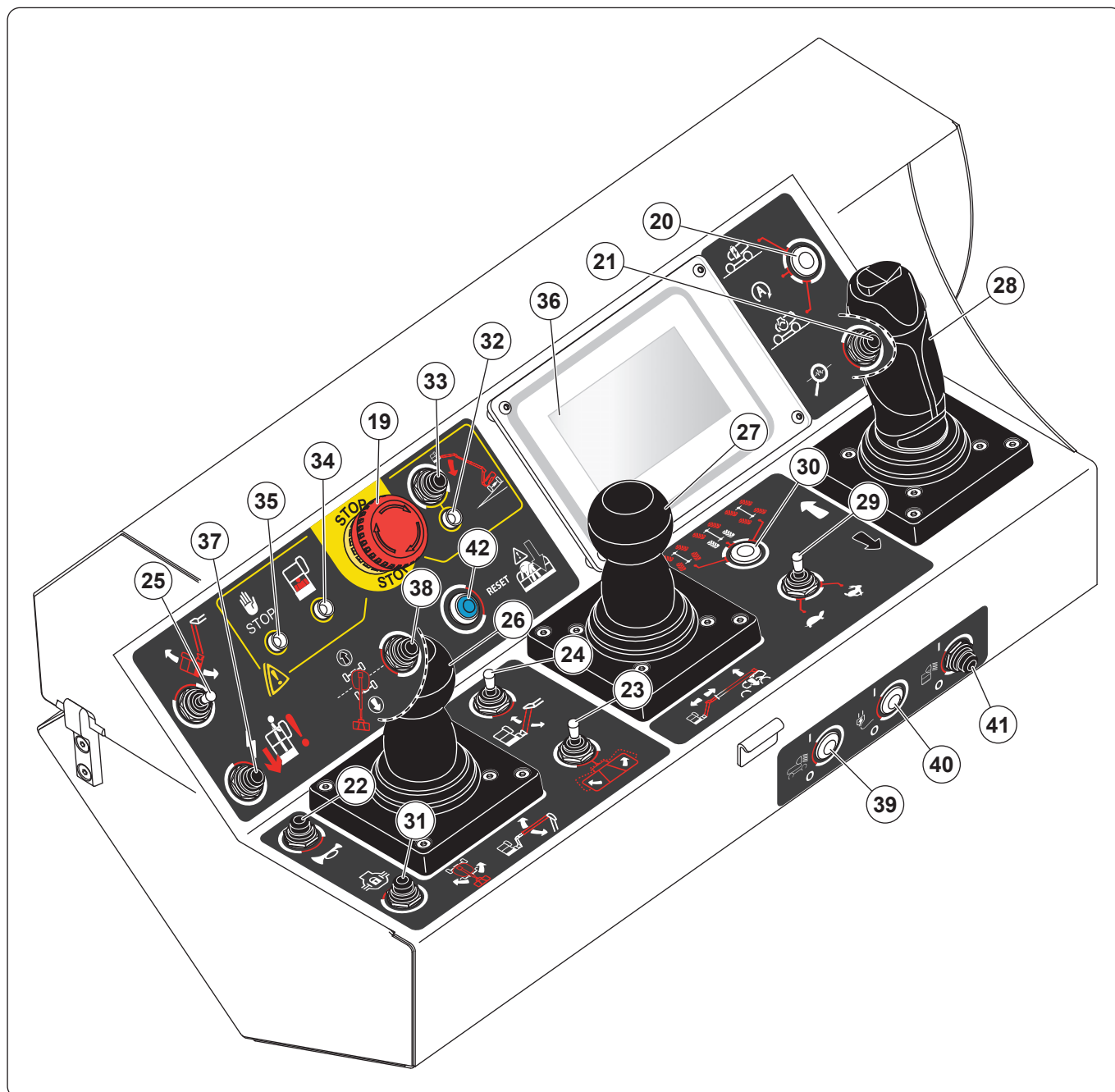


1- EMERGENCY STOP BUTTON	2-30
2- IGNITION SWITCH.....	2-30
3- NOT USED.....	2-30
4- NOT USED.....	2-30
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CONTROL PANEL AND SAFETY DEVICES IN THE PLATFORM

⚠ IMPORTANT ⚠

Front, rear, left and right are defined in MACHINE OPERATION: TRANSPORT/WORKING POSITION.



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1- EMERGENCY STOP BUTTON

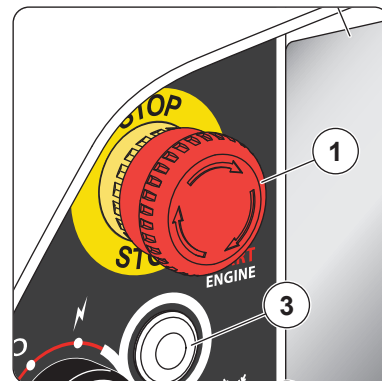
⚠ IMPORTANT ⚠

In all cases, this control takes priority, even if the machine's functions are activated from the control panel in the platform.

Movements may stop suddenly if the emergency stop button is pressed.

2 positions:

- Off (locked): press the button.
- On (unlocked): pull the button or turn it clockwise and release.



2- IGNITION SWITCH

2 positions:



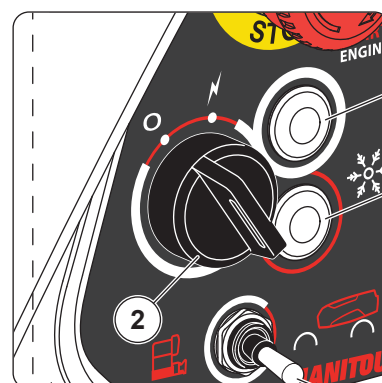
Off: the control system is turned off. The key can be removed.

Note: the battery cut-off must be in the OFF position to switch the machine off.



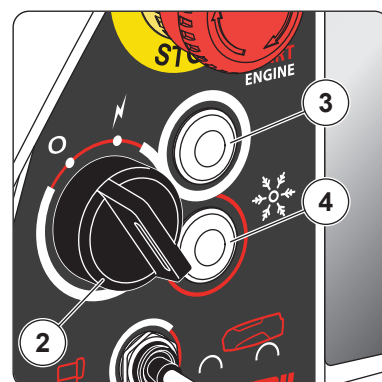
On: the control system is powered up. The key cannot be removed.

Note: the battery cut-off must be in the ON position and the 2 emergency stop buttons must be in the ON position to power the machine up.



3- NOT USED

4- NOT USED



5- ACTIVATION SWITCH

2 positions:

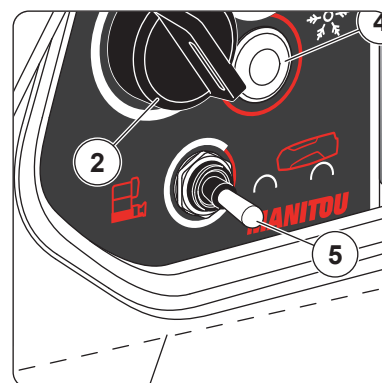


Platform controls: the controls in the platform are activated when the switch is released.



Ground level controls: push and hold the switch to the right to activate the ground level controls.

Note: this operating mode is called the "dead man" function.



6- JIB CONTROL BUTTONS

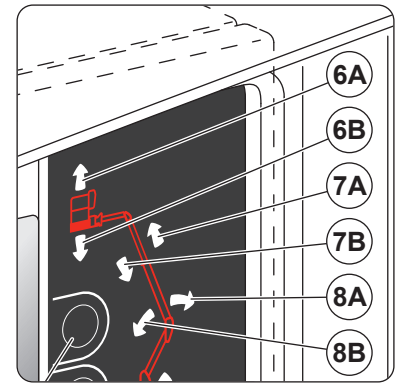
- Push and hold the activation switch to the right  (ground controls position).

RAISE THE JIB

- Press and hold down the button . Release to stop.

LOWER THE JIB

- Press and hold down the button . Release to stop.



7- TELESCOPIC ARM CONTROL BUTTONS

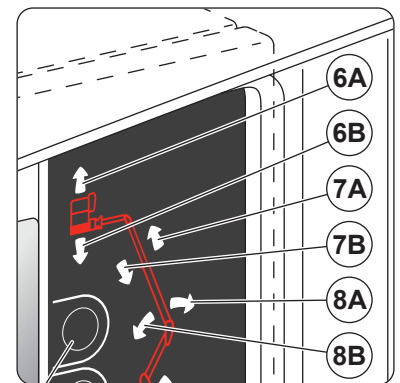
- Push and hold the activation switch to the right  (ground controls position).

EXTEND THE TELESCOPIC ARM

- Press and hold down the button . Release to stop.

RETRACT THE TELESCOPIC ARM

- Press and hold down the button . Release to stop.



8- MAIN ARM CONTROL BUTTONS

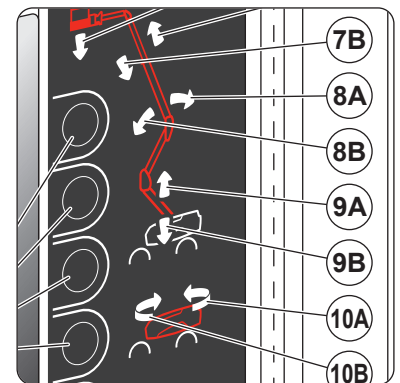
- Push and hold the activation switch to the right  (ground controls position).

RAISE THE MAIN ARM

- Press and hold down the button . Release to stop.

LOWER THE MAIN ARM

- Press and hold down the button . Release to stop.



9- SECONDARY ARM CONTROL BUTTONS

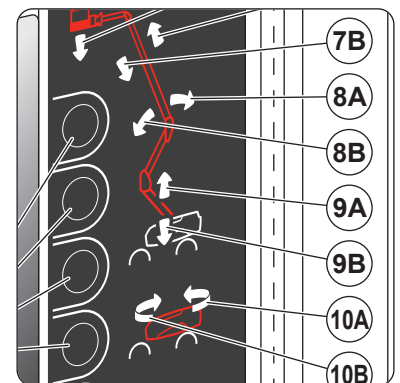
- Push and hold the activation switch to the right  (ground controls position).

RAISE THE SECONDARY ARM

- Press and hold down the button . Release to stop.

LOWER THE SECONDARY ARM

- Press and hold down the button . Release to stop.



10- TURNTABLE ROTATION CONTROL BUTTONS

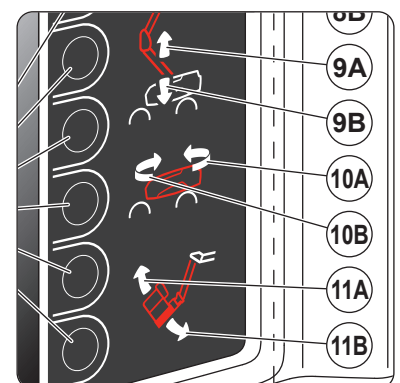
- Push and hold the activation switch to the right  (ground controls position).

TURN THE TURNTABLE TO THE RIGHT

- Press and hold down the button . Release to stop.

TURN THE TURNTABLE TO THE LEFT

- Press and hold down the button . Release to stop.



11- PLATFORM/JIB TILT CONTROL BUTTONS

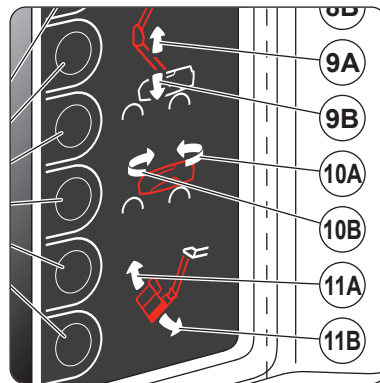
- Push and hold the activation switch to the right  (ground controls position).

TILT THE PLATFORM/JIB UPWARDS

- Press and hold down the button . Release to stop.

TILT THE PLATFORM/JIB DOWNWARDS

- Press and hold down the button . Release to stop.

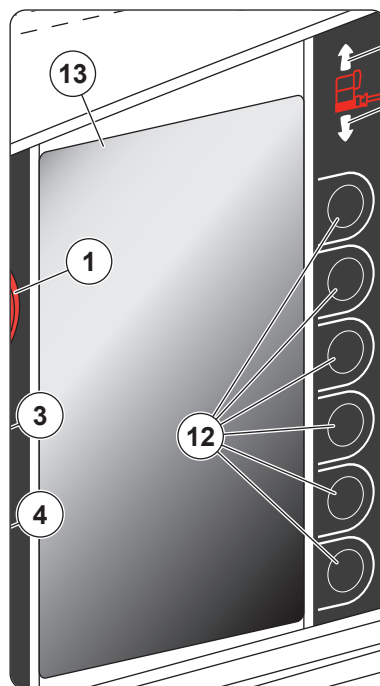


12- NAVIGATION KEYS

- ◀ GROUND LEVEL SCREEN.

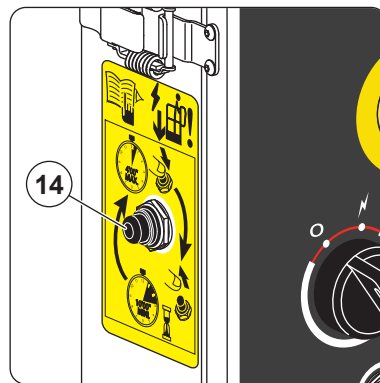
13- GROUND LEVEL SCREEN

- ◀ GROUND LEVEL SCREEN.



14- BACKUP PUMP PUSHBUTTON

- ◀ EMERGENCY CONTROLS.



15- HORN

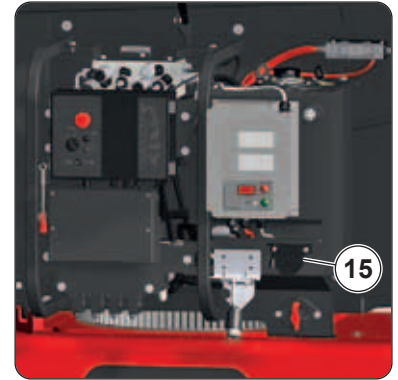
The horn sounds:

- When the horn pushbutton is pressed.
- Twice when the machine is powered up without activating the machine's functions for 10 seconds, GROUND LEVEL SCREEN and PLATFORM SCREEN.

All movements alarm option: it sounds intermittently when the machine's functions are activated and when driving/steering the machine.

Driving/steering alarm option: it sounds intermittently when driving/steering the platform.

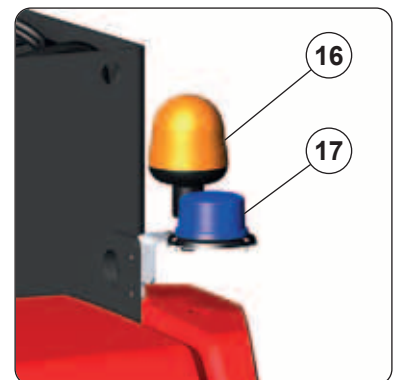
Secondary protection system SPS option, OPTIONS: SECONDARY PROTECTION SYSTEM SPS.



16- ORANGE ROTATING BEACON LIGHT

Permanent orange rotating beacon light option disabled: it comes on when the machine's functions are activated and when driving/steering the machine.

Permanent orange rotating beacon light option enabled: it comes on when the machine is powered on.



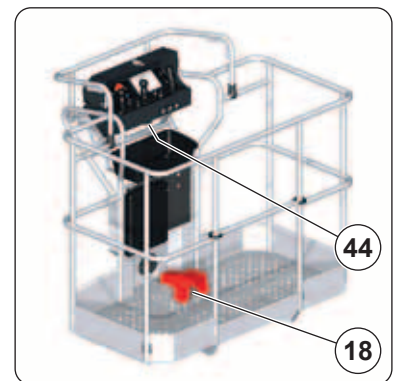
17- FLASHING LIGHT SPS (OPTION)

 OPTIONS: SECONDARY PROTECTION SYSTEM SPS.

18- FOOT SWITCH

- Press and hold down the foot switch to activate the machine's functions from the control panel in the platform.

Note: this operating mode is called the "dead man" function.



19- EMERGENCY STOP BUTTON

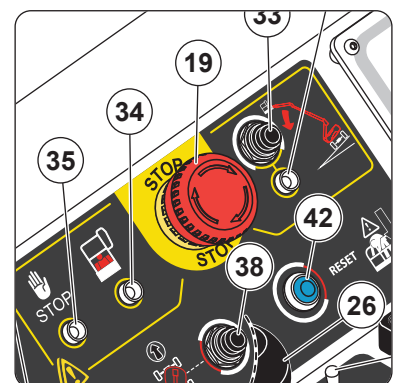
⚠ IMPORTANT ⚠

In all cases, this control takes priority, except when the machine's functions are activated from the ground level control panel.

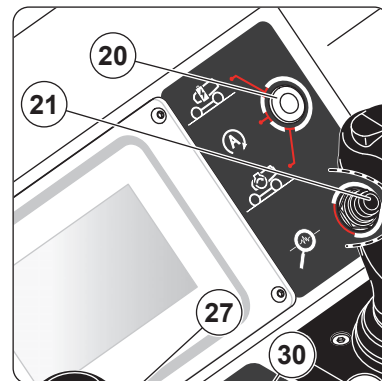
Movements may stop suddenly if the emergency stop button is pressed.

2 positions:

- Off (locked): press the button.
- On (unlocked): pull the button or turn it clockwise and release.

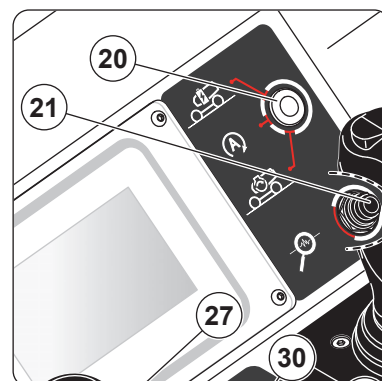


20- NOT USED



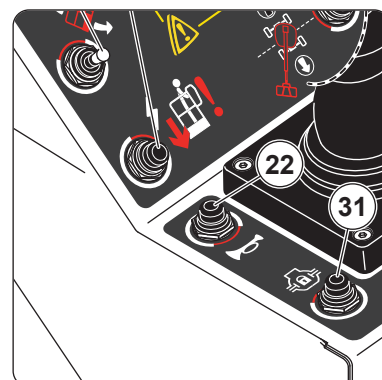
21- DIAGNOSTIC PUSHBUTTON

Only used for diagnostics performed by Manitou accredited service technicians.



22- HORN PUSHBUTTON

- Press and hold down the pushbutton to sound the horn. Release to stop it.



23- PLATFORM ROTATION SWITCH

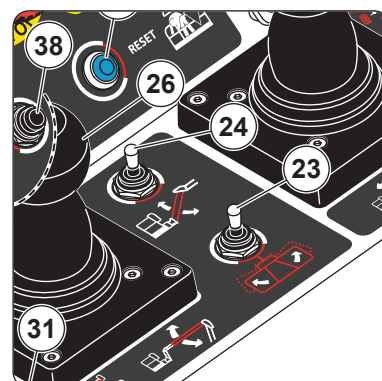
- Press and hold down the foot switch.

TURN THE PLATFORM TO THE LEFT

- Push and hold the switch to the left. Release to stop.

TURN THE PLATFORM TO THE RIGHT

- Push and hold the switch to the right. Release to stop.



24- JIB SWITCH

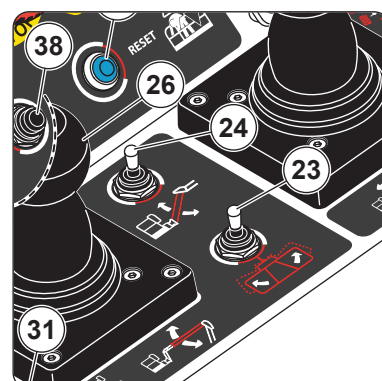
- Press and hold down the foot switch.

RAISE THE JIB

- Push the switch forwards and hold it there. Release to stop.

LOWER THE JIB

- Pull the switch backwards and hold it there. Release to stop.



25- PLATFORM/JIB TILT SWITCH

Note: the functions are locked when the machine is in working position,  OPERATING THE MACHINE: TRANSPORT/WORKING POSITION.

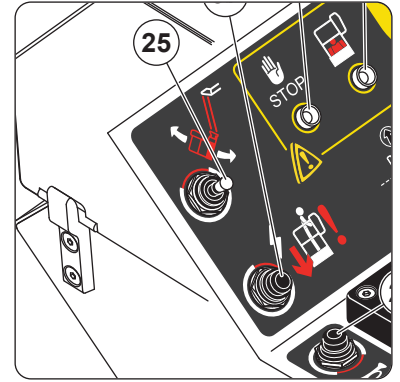
- Press and hold down the foot switch.

TILT THE PLATFORM/JIB UPWARDS

- Push and hold the switch upwards. Release to stop.

TILT THE PLATFORM/JIB DOWNWARDS

- Push and hold the switch downwards. Release to stop.



26- MAIN ARM/TURNTABLE ROTATION CONTROL HANDLE

Note: the proportional control handle must be operated smoothly, without jerking.

- Press and hold down the foot switch.

RAISE THE MAIN ARM

- Push and hold the control handle forward. Release to stop.

LOWER THE MAIN ARM

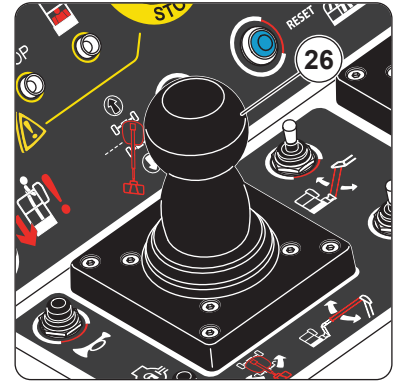
- Pull and hold the control handle back. Release to stop.

TURN THE TURNTABLE TO THE LEFT

- Push and hold the control handle to the left. Release to stop.

TURN THE TURNTABLE TO THE RIGHT

- Push and hold the control handle to the right. Release to stop.



27- SECONDARY ARM/TELESCOPIC ARM CONTROL HANDLE

Note: the proportional control handle must be operated smoothly, without jerking.

- Press and hold down the foot switch.

RAISE THE SECONDARY ARM

- Push and hold the control handle forward. Release to stop.

LOWER THE SECONDARY ARM

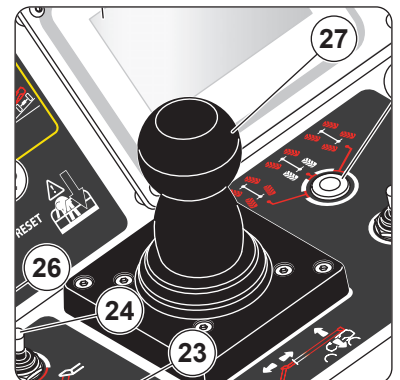
- Pull and hold the control handle back. Release to stop.

EXTEND THE TELESCOPIC ARM

- Push and hold the control handle to the left. Release to stop.

RETRACT THE TELESCOPIC ARM

- Push and hold the control handle to the right. Release to stop.



28- DRIVING/STEERING CONTROL HANDLE

⚠ IMPORTANT ⚠

Always refer to the arrow colours on the chassis and on the control panel in the platform before driving/steering the machine.

Note: the proportional control handle must be operated smoothly, without jerking.

- Press and hold down the foot switch.
- Press and hold down trigger **A**.

DRIVE FORWARDS

- Push and hold the control handle forward. Release to brake.

DRIVE BACKWARDS

- Pull and hold the control handle back. Release to brake.

BRAKE

- Release the control handle in the neutral position to action the brakes.

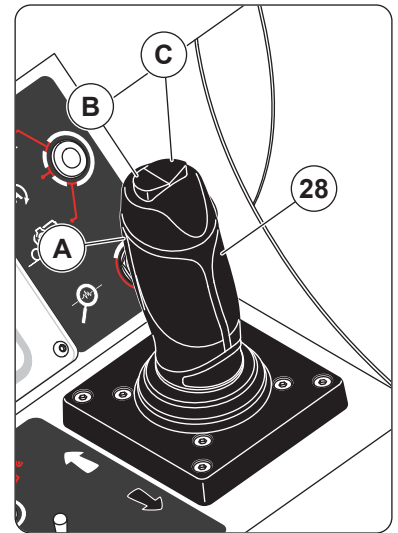
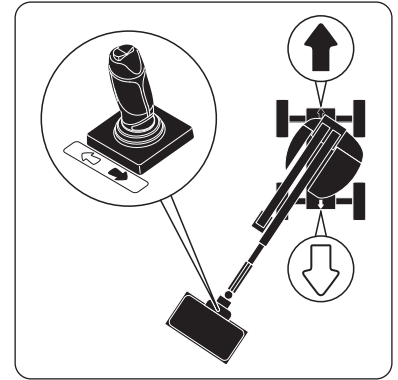
Note: the brakes are also actuated when the trigger and/or the pedal switch are released.

STEER TO THE LEFT

- Press and hold down pushbutton **B**. Release to stop.

STEER TO THE RIGHT

- Press and hold down pushbutton **C**. Release to stop.



29- DRIVING SPEED SWITCH

⚠ IMPORTANT ⚠

Always brake the machine before selecting the driving speed.

2 positions:



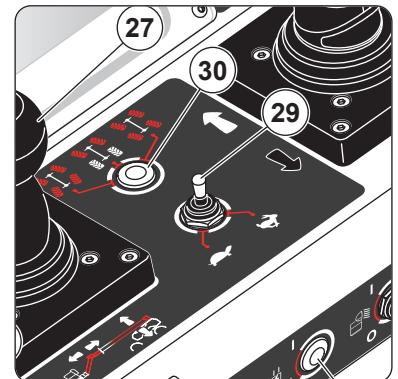
Tortoise speed for driving the machine at slow speed.



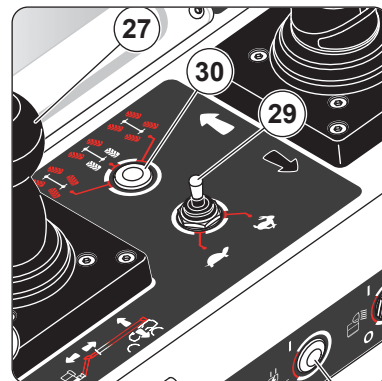
Hare speed for driving the machine at high speed.

Note: depending on conditions, restrictions may apply to the speed activated,

◀ MACHINE OPERATION: TRANSPORT/WORKING POSITION.



30- NOT USED



31- DIFFERENTIAL LOCK PUSHBUTTON

⚠ IMPORTANT ⚠

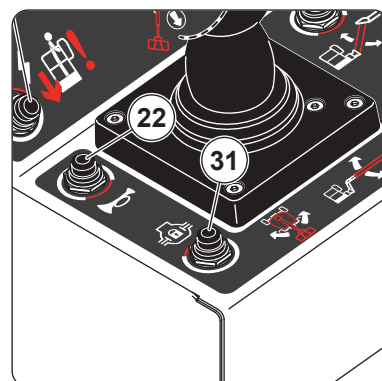
It is recommended to lock and unlock the differential when the wheels are correctly aligned with the axis of the machine.

LOCK THE DIFFERENTIAL

- Press and hold down the pushbutton, then drive the machine.
- or
- Drive the machine, then press and hold the pushbutton.

UNLOCK THE DIFFERENTIAL

- Release the pushbutton, then brake the machine.
- or
- Brake the machine, then release the pushbutton.



32- TILT/SLEW LOCK LIGHT

TILT WARNING

It happens when the frame is tilted by more than the maximum authorised value:

- Some machine functions are locked, OPERATING THE MACHINE: LOCKED FUNCTIONS.
- The light flashes (on = 0.6 seconds, off = 0.4 seconds).
- Machine in transport position: the text and the tilt pictogram  are displayed in orange on the platform screen, PLATFORM SCREEN.
- Machine in working position: the text and the tilt pictogram  are displayed in RED on the platform screen, PLATFORM SCREEN.
- The audible alarm sounds intermittently (on = 1 second, off = 1 second).

Stop the tilt alarm and unlock the machine's functions (machine in transport position):

- 1- Move the machine to a level surface.

Stop the tilt alarm and unlock the machine's functions (machine in working position):

- 1- Fully retract the telescopic arm.
- 2- Fully lower the main arm.
- 3- Fully lower the secondary arm.
- 4- Move the machine to a level surface.

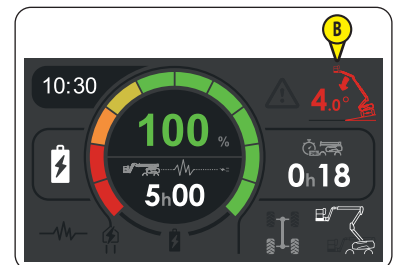
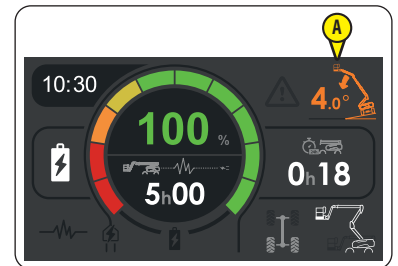
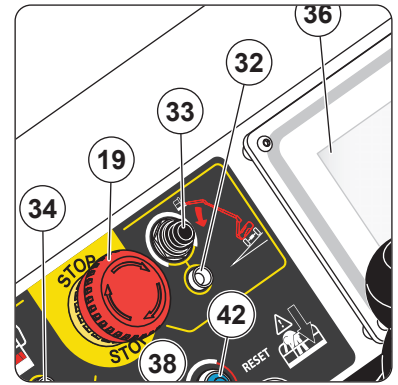
SLEW LOCK FAULT

This happens when an oscillating axle locking fault occurs (machine in working position):

- Some machine functions are locked, OPERATING THE MACHINE: LOCKED FUNCTIONS.
- The light flashes (on = 0.4 seconds, off = 0.2 seconds).
- The fault light flashes, FAULT LIGHT.
- A fault page is displayed on the ground level screen and on the screen in the platform.
- The audible alarm sounds intermittently (on = 0.4 second, off = 0.4 second).

React in the event of a slew lock fault:

- 1- Fully retract the telescopic arm.
- 2- Fully lower the main arm.
- 3- Fully lower the secondary arm.
- 4- Fully lower the jib.
- 5- Move the machine to a level surface.
- 6- Stop using the machine. Contact maintenance personnel.

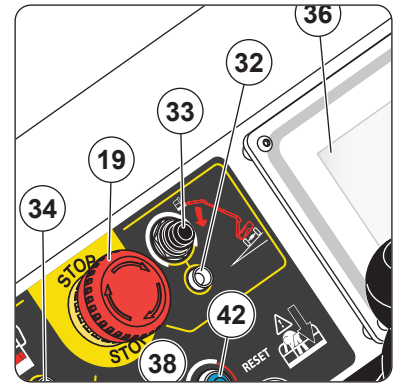


33- USE ON SLOPE PUSHBUTTON

⚠ IMPORTANT ⚠

The machine could tip over when this function is used. Use with extreme caution.

- Press the pushbutton and hold it down to activate the locked functions (except driving forwards/backwards) when the tilt alarm occurs, ⚠ TILT/SLEW LOCK LIGHT.



34- OVERLOAD LIGHT

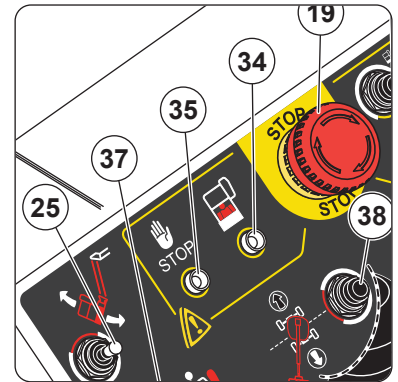
OVERLOAD WARNING

This occurs when the load in the platform has reached the maximum load capacity:

- All the machine functions are locked, ⚠ OPERATING THE MACHINE: LOCKED FUNCTIONS.
- The light flashes.
- A warning page is displayed on the ground level screen and on the screen in the platform.
- The audible alarm sounds continuously.

Stop the overload alarm and unlock the machine's functions:

- Remove the excess load from the platform.

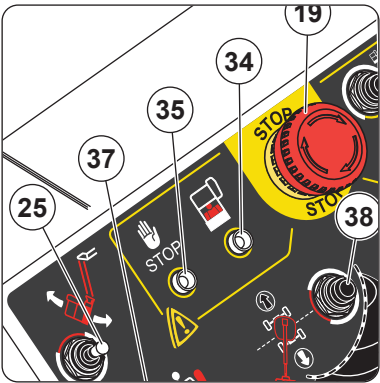


35- FAULT INDICATOR LAMP

⚠ IMPORTANT ⚠

Refer to the maintenance personnel if there is a fault.

- The indicator lamp flashes when a fault occurs:
- Minor fault: on = 0.6 seconds, off = 0.4 seconds.
 - Major fault: on = 0.3 seconds, off = 0.2 seconds.

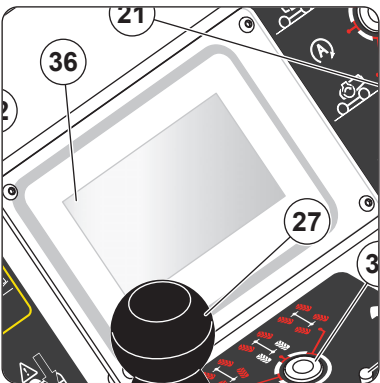


MINOR FAULTS	AUDIBLE ALARM	
The foot-to-foot switch or the activation switch is blocked	1 beep	Stop using the machine.
The driving/steering control handle trigger is locked		
The safety cable SPS or the reset pushbutton SPS is blocked (option: secondary protection system SPS)	3 beeps repeated every 8 seconds	
Other minor faults	Stop	
MAJOR FAULTS	AUDIBLE ALARM	
CAN Communication	Stop	All the functions of the machine are locked.
Proportional distributor	Sounds intermittently	Stop using the machine.
Overload sensor inconsistency		
Oscillating axle locking (1)		

(1) The tilt/slew lock light flashes at the same time.

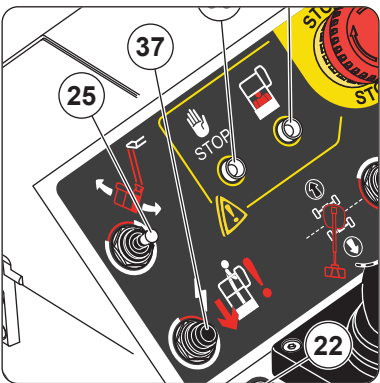
36- PLATFORM SCREEN

PLATFORM SCREEN.



37- BACKUP PUMP PUSHBUTTON

EMERGENCY CONTROLS.



38- TURNABLE SLEW PUSHBUTTON

⚠ IMPORTANT ⚠

Always refer to the arrow colours on the chassis and on the control panel in the platform before driving/steering the machine.

TURNABLE SLEW WARNING

This occurs when the turntable angle is greater than 90° (left or right) relative to the neutral position:

- The driving/steering functions are locked.
- A warning page is displayed on the ground level screen and on the screen in the platform.

Note: the audible alarm sounds twice when trying to drive.

Unlock the driving/steering functions:

- Press and release the pushbutton.

Result:

- The warning page and the work page are displayed alternately.

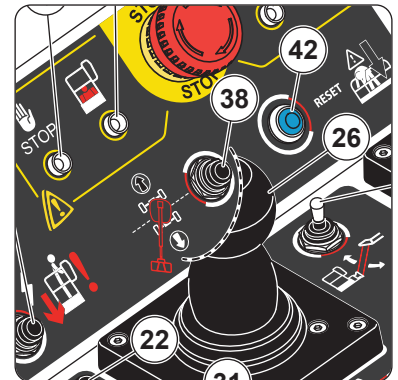
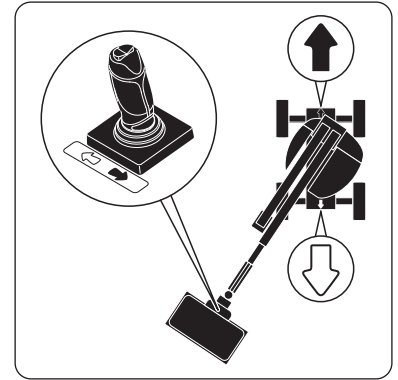
Note: the turntable slew warning will recur if the driving/steering control handle is not activated in the next 5 seconds.

Stop the turntable slew warning and unlock the driving/steering functions:

- Turn the turntable so that the angle of the turntable is less than 90° (left or right) relative to the neutral position.

Result:

- The warning page is no longer displayed.

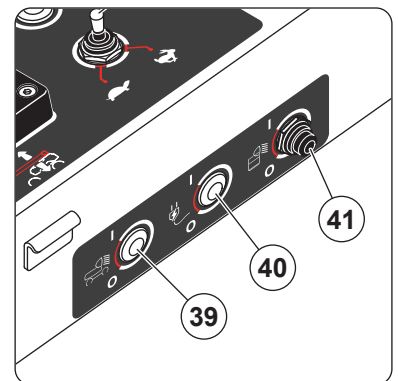


39- NOT USED

40- NOT USED

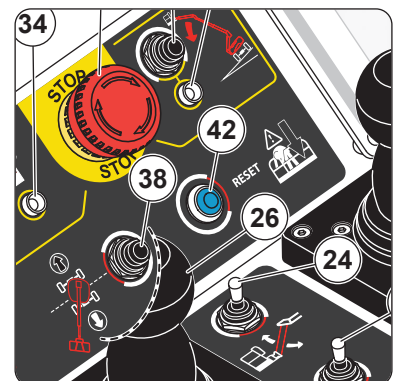
41- WORKLIGHT PUSHBUTTON (OPTION)

☞ OPTIONS: WORKLIGHT.



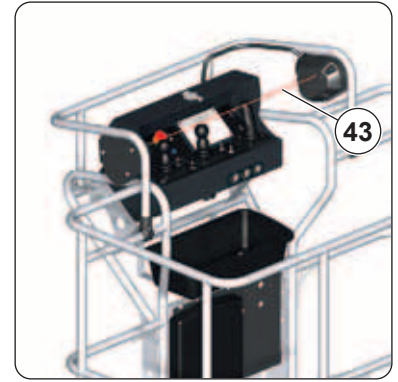
42- RESET PUSHBUTTON SPS (OPTION)

☞ OPTIONS: SECONDARY PROTECTION SYSTEM SPS.



43- SAFETY CABLE SPS (OPTION)

☞ OPTIONS: SECONDARY PROTECTION SYSTEM SPS.



44- AUDIBLE ALARM

The audible alarm sounds:

- Once after the machine has been powered up.
- Twice when the machine's functions cannot be activated simultaneously, ☞ OPERATING THE MACHINE.

TILT WARNING

- It sounds intermittently when the frame is tilted by more than the maximum authorised value, ☞ TILT/SLEW LOCK LIGHT.

SLEW LOCK FAULT

- It sounds intermittently when an oscillating axle locking fault occurs, ☞ TILT/SLEW LOCK LIGHT.

OVERLOAD WARNING

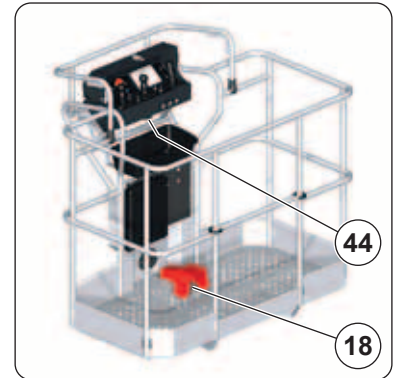
- It sounds continuously when the load in the platform has reached the maximum load capacity, ☞ OVERLOAD LIGHT.

OTHER FAULTS

- It sounds when a minor or major fault occurs, ☞ FAULT INDICATOR LAMP.

TURNTABLE SLEW WARNING

- It sounds twice when trying to drive, ☞ TURNTABLE SLEW PUSHBUTTON.

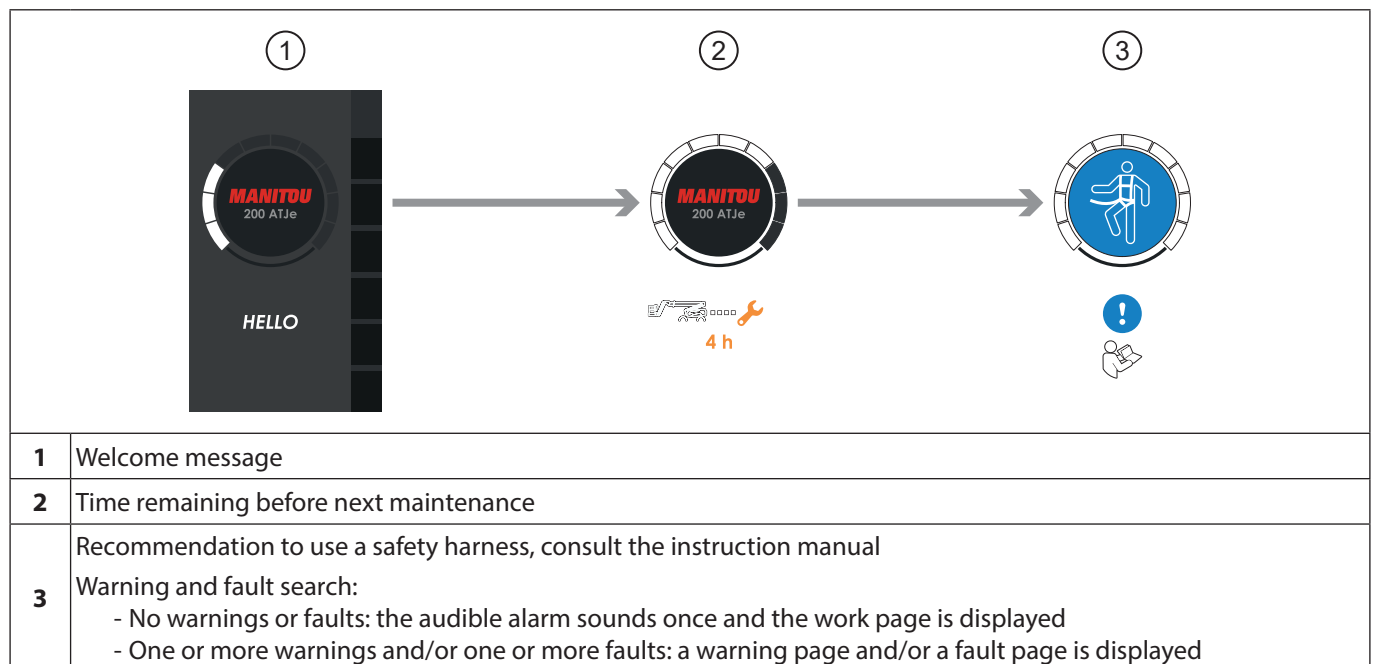


GROUND LEVEL SCREEN

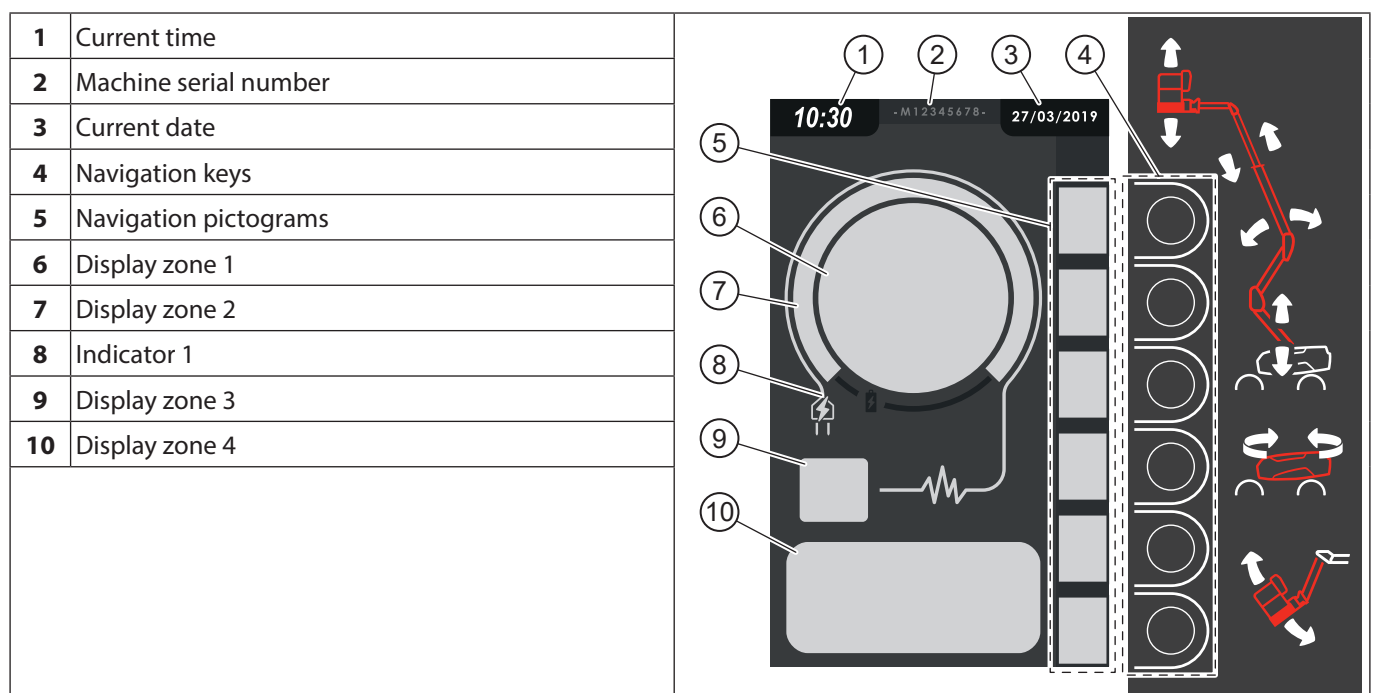
POWER-UP CYCLE

The following pages are displayed on after the other when the machine is switched on.

Note: the battery charger is not connected.



DISPLAY ZONES



NAVIGATION PICTOGRAMS

⚠ IMPORTANT ⚠

Consult the maintenance personnel when the pictogram "maintenance warning"  (orange background) is displayed.

The navigation keys  activate the controls relating to the navigation pictograms  displayed:

5		Access menus
		Back to previous menu
		Confirm selection
		Refresh display
		Navigate up in the menu
		Navigate down in the menu
		Move left on the page
		Move right on the page
		Move up on the page
		Move down on the page
		Menu navigation (pages) enabled
		Page navigation (lines) enabled
		Write mode
		Increase
		Decrease
		Confirm change
		Cancel change
		Day/night screen display change
		Quick access to maintenance menu (black background)
		Maintenance warning (orange background), quick access to maintenance menu
		Quick access to the list of warnings and faults
		View fault type
		Filter warnings, faults and events
		Delete a warning, fault or event display
		Restore factory configuration

The following information is displayed when:

- The battery charger is switched off.
- There is no warning.
- There is no fault.

6	Battery charge level as percentage: - Red text between 0% and 10% - Orange text between 11% and 20% - Yellow text between 21% and 30% (1) - Green text between 31% and 100%	
	Remaining charge in hours and minutes	
7	Battery charge level Note: 2 red segments (3), 2 orange segments, 2 yellow segments and 7 green segments corresponding to the battery charge level as a percentage	
8	Depends on the battery charge level: - Red indicator (3) between 0% and 10% - Orange indicator (2) between 11% and 20% - Yellow indicator (1) between 21% and 30% - Black indicator between 31% and 100%	
9	Machine switched on	
10	Total running time in hours	

(1) It is recommended to charge the batteries, ⚡ CHARGING THE BATTERIES.

(2) Flashes when the battery charge level is between 11% and 20%.

(3) Flash when the battery charge level is between 6% and 10%: it is no longer possible to raise the main/secondary arms, extend the telescopic arm, raise the jib, tilt the platform/jib upwards or downwards, turn the turntable and turn the platform for more than 3 seconds at a time.

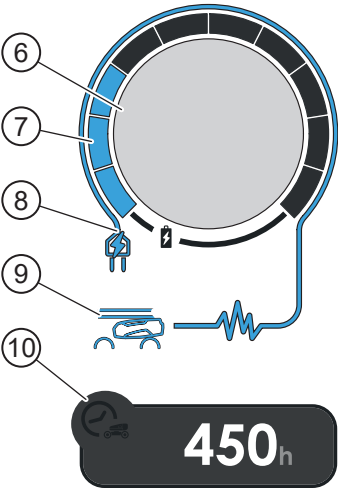
(3) Flash when the battery charge level is less than or equal to 5%: some machine functions are locked, ⚡ OPERATING THE MACHINE: LOCKED FUNCTIONS.

BATTERY CHARGER PAGE

The following information is displayed when:

- The battery charger is switched on.
- There is no warning.

6		Battery charge level as percentage Note: blue text
		Charge cycle (1/3, 2/3 or 3/3)
		Estimated remaining charge time in hours and minutes
		"End of charging, regeneration in progress" is displayed or "End of charging, equalisation in progress" is displayed Note: black background and red box
		Battery charging complete: "ok" (OK) is displayed Note: green background
7	Battery charge level (1 segment = 10%) Note: blue segments	
8	Battery charger switched on	
9	Note: blue indicator and pictogram (1)	
10	Total running time in hours	

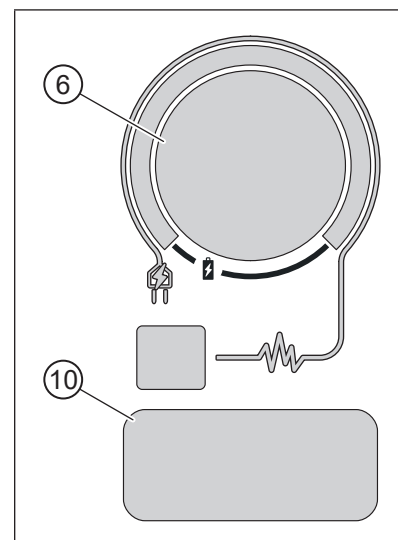


(1) The indicator may be red when a warning occurs.

WARNING PAGE AND FAULT PAGE

The following information is displayed when:

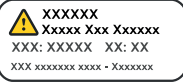
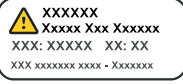
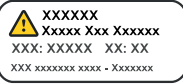
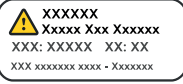
- One or more warnings occur and/or one or more faults occur.



WARNINGS

Single warning display		Warning description display		Type	Description
6	 Note: red background with pictogram depending on the warning	10	 Note: red box	Danger	Indicates a hazardous situation which, if not avoided will result in death or serious injury.
6	 Note: orange background with pictogram depending on the warning	10	 Note: orange box	Warning	Indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury.
6	 Note: yellow background with pictogram depending on the warning	10	 Note: yellow box	Important	Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.
6	 Note: blue background with pictogram depending on the warning	10	 Note: blue box	Information	Indicates normal operation of the machine or a procedure to follow that do not pose any risk of bodily injury

FAULTS

Multiple faults display		Single fault display		Fault description display		Type	Description
6		6		10		Major motor/variable control fault	Indicates a situation which, if not avoided, will result in damage to the machine but does not pose any risk of bodily injury
		6		10		Major machine fault	Indicates a situation which, if not avoided, will result in damage to the machine but does not pose any risk of bodily injury
		6		10		Minor motor/variable control fault	Indicates a situation which, if not avoided, may result in damage to the machine but does not pose any risk of bodily injury
		6		10		Minor machine fault	Indicates a situation which, if not avoided, may result in damage to the machine but does not pose any risk of bodily injury

PLATFORM SCREEN

POWER-UP CYCLE

The following pages are displayed on after the other when the machine is switched on.

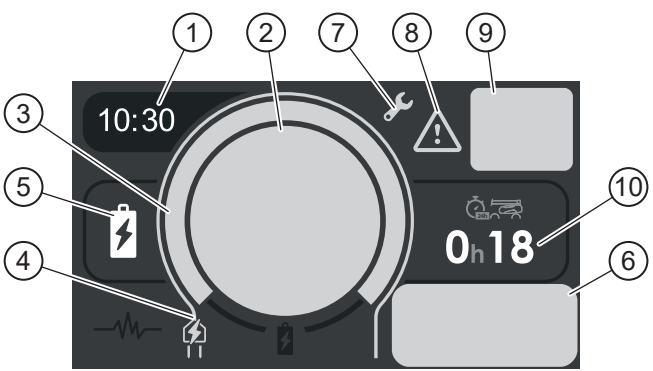
Note: the battery charger is not connected.

	①  → ② 
1	Welcome message
2	Recommendation to use a safety harness, consult the instruction manual Warning and fault search: - No warnings or faults: the audible alarm sounds once and the work page is displayed - One or more warnings and/or one or more faults: a warning page and/or a fault page is displayed

DISPLAY ZONES

⚠ IMPORTANT ⚠

Consult the maintenance personnel when the pictogram "maintenance warning"  (orange pictogram) is displayed.

1	Current time	
2	Display zone 1	
3	Display zone 2	
4	Indicator 1	
5	Machine switched on	
6	Display zone 3	
7	 No maintenance warning Note: black pictogram	
	 Maintenance warning Note: orange pictogram	
8	 No fault detected Note: black pictogram	
	 Fault detected Note: black and yellow pictogram	
9	 Frame tilt in degrees less than the maximum authorised value Note: grey pictogram and white text	
	 Machine in transport position: frame tilt in degrees greater than the maximum authorised value Note: orange pictogram and text	
	 Machine in working position: frame tilt in degrees greater than the maximum authorised value Note: red pictogram and text	
10	Daily running time in hours and minutes	

The following information is displayed when:

- The battery charger is not connected.
- There is no warning.
- There is no fault.

2	Battery charge level as percentage: - Red text between 0% and 10% - Orange text between 11% and 20% - Yellow text between 21% and 30% (1) - Green text between 31% and 100%	
	Remaining charge in hours and minutes	
3	Battery charge level Note: 2 red segments (3), 2 orange segments, 2 yellow segments and 7 green segments corresponding to the battery charge level as a percentage	
4	Depends on the battery charge level: - Red indicator (3) between 0% and 10% - Orange indicator (2) between 11% and 20% - Yellow indicator (1) between 21% and 30% - Black indicator between 31% and 100%	
6		

(1) It is recommended to charge the batteries, CHARGING THE BATTERIES.

(2) Flashes when the battery charge level is between 11% and 20%.

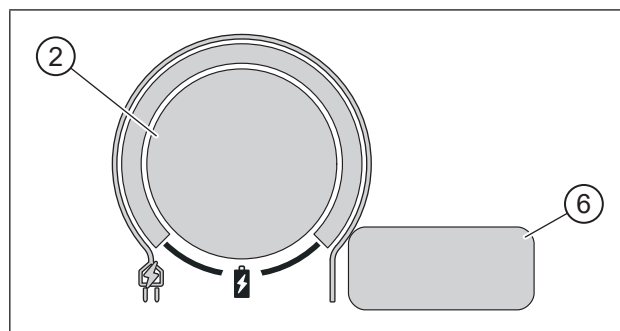
(3) Flash when the battery charge level is between 6% and 10%: it is no longer possible to raise the main/secondary arms, extend the telescopic arm, raise the jib, tilt the platform/jib upwards or downwards, turn the turntable and turn the platform for more than 3 seconds at a time.

(3) Flash when the battery charge level is less than or equal to 5%: some machine functions are locked, OPERATING THE MACHINE: LOCKED FUNCTIONS.

WARNING PAGE AND FAULT PAGE

The following information is displayed when:

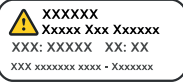
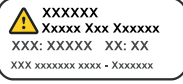
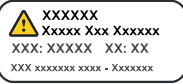
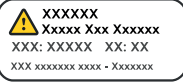
- The battery charger is not connected.
- One or more warnings occur and/or one or more faults occur.



WARNINGS

Single warning display		Warning description display		Type	Description
2		6		Danger	Indicates a hazardous situation which, if not avoided will result in death or serious injury.
2		6		Warning	Indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury.
2		6		Important	Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.
2		6		Information	Indicates normal operation of the machine or a procedure to follow that do not pose any risk of bodily injury

FAULTS

Multiple faults display		Single fault display		Fault description display		Type	Description
2		2	 Note: grey background with motor pictogram	6	 Note: grey box	Major motor/variable control fault	Indicates a situation which, if not avoided, will result in damage to the machine but does not pose any risk of bodily injury
		2	 Note: grey background with pictogram depending on the fault	6	 Note: grey box	Major machine fault	Indicates a situation which, if not avoided, will result in damage to the machine but does not pose any risk of bodily injury
		2	 Note: grey background with motor pictogram	6	 Note: grey box	Minor motor/variable control fault	Indicates a situation which, if not avoided, may result in damage to the machine but does not pose any risk of bodily injury
		2	 Note: grey background with pictogram depending on the fault	6	 Note: grey box	Minor machine fault	Indicates a situation which, if not avoided, may result in damage to the machine but does not pose any risk of bodily injury

OPERATING THE MACHINE

⚠ IMPORTANT ⚠

Part 1 - OPERATING AND SAFETY INSTRUCTIONS must be read and understood before operating the machine.

TRANSPORT/WORKING POSITION

TRANSPORT POSITION

The machine is in the transport position when:

- The main arm is completely lowered.
- The secondary arm is completely lowered.
- The telescopic arm is completely retracted.

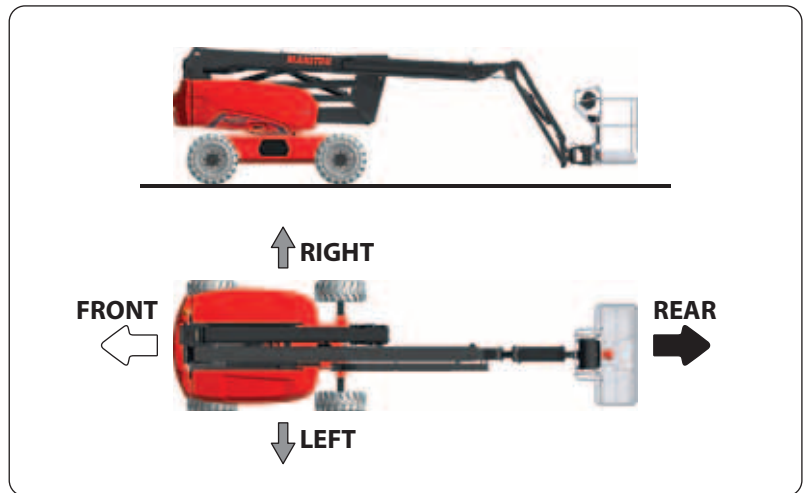
Note: the jib may or may not be raised. The turntable and platform may or may not be turned.

The turntable and the platform are in neutral position when the main arm and the platform are parallel to the machine's frame, with the platform between the two rear wheels.

Front, rear, left and right are defined as follows:

- The machine is in transport position.
- The turntable and platform are in the neutral position.
- The operator is in the platform facing the direction of the front wheels.

The tortoise and hare speeds are only active in the transport position.



	 Tortoise speed selected	 Hare speed selected
Drive forwards	 Tortoise speed activated	 Hare speed forwards activated
Drive backwards	 Tortoise speed activated	 Hare speed backwards activated

It is recommended that the turntable and platform are put in the neutral position to drive the machine at hare speed.

When driving the machine over a long distance, it is recommended to:

- Put the machine in the transport position.
- Put the turntable and platform in the neutral position.
- Raise the jib slightly for better visibility.
- Drive the machine forwards.

WORKING POSITION

⚠ IMPORTANT ⚠

Travelling over rough terrain, on unstable ground, on slopes that are steeper than the maximum authorised frame tilt, ($\leq$ SPECIFICATIONS) or in any other conditions likely to cause the machine to tip up or become destabilised, is prohibited.

The machine is in the working position when:

- The main arm is not completely lowered.
- The secondary arm is not completely lowered.
- The telescopic arm is not completely retracted.

Note: the jib may or may not be raised. The turntable and platform may or may not be turned.

Working speed is automatically activated when the machine is in the working position.

⚠ IMPORTANT ⚠

◀ **CONTROL PANEL AND SAFETY DEVICES ON THE GROUND** for detailed information about the ground controls.

TURNING THE MACHINE ON

- Ensure that the emergency stop buttons on the ground level control panel and on the control panel in the platform are in the ON position.
- Turn the battery cut-off to the ON position, ▶ STANDARD EQUIPMENT: BATTERY CUT-OFF.



- Turn the ignition switch to the ON position.

Result:

- The ground level screen comes on, ▶ GROUND LEVEL SCREEN.

Note: secondary protection system SPS option, ▶ OPTIONS: SECONDARY PROTECTION SYSTEM SPS.

TURNING THE MACHINE OFF

- Turn the ignition switch to the OFF position.
- Turn the battery cut-off to the OFF position, ▶ STANDARD EQUIPMENT: BATTERY CUT-OFF.



POSITIONING THE PLATFORM

- Ensure that the turntable is unlocked, ▶ SAFETY COMPONENTS: TURNTABLE LOCKING PIN.

Note: the turntable must be locked when transporting and lifting the machine, ▶ TRANSPORT AND LIFTING: TRANSPORT INSTRUCTIONS and ▶ TRANSPORT AND LIFTING: LIFTING INSTRUCTIONS.

- Switch on the machine.

- Push and hold the activation switch to the right (ground controls position).
- Use the appropriate control keys to position the platform.
- Release the activation switch.



ACTIVATING SIMULTANEOUS FUNCTIONS

2 machine functions can be activated at the same time.

Note: the audible warning sounds twice when machine functions cannot be operated simultaneously.

EMERGENCY STOP

- Press the emergency stop button (OFF position).

USE FROM THE CONTROL PANEL IN THE PLATFORM

IMPORTANT

 **CONTROL PANEL AND SAFETY DEVICES IN THE PLATFORM** for detailed information about the controls in the platform.

*Make sure that the platform is level before putting the machine in transport position,  **OPERATING THE MACHINE: TRANSPORT/WORKING POSITION**.*

Key lock option for turntable covers: to guarantee access to the emergency controls, the right turntable cover must be unlocked before using the machine from the platform.

TURNING THE MACHINE ON/OFF

 OPERATION FROM THE GROUND LEVEL CONTROL PANEL.

DRIVING, STEERING AND BRAKING THE MACHINE

IMPORTANT

Always refer to the arrow colours on the chassis and on the control panel in the platform before driving/steering the machine.

- Ensure that the turntable is unlocked,  **SAFETY COMPONENTS: TURNTABLE LOCKING PIN**.

Note: the turntable must be locked when transporting and lifting the machine,  **TRANSPORT AND LIFTING: TRANSPORT INSTRUCTIONS** and  **TRANSPORT AND LIFTING: LIFTING INSTRUCTIONS**.

- Switch on the machine.
- Set the driving speed switch to the desired speed.
- Press and hold down the foot switch.
- Use the driving/steering control handle to drive, steer and brake the machine.
- Release the foot switch.

POSITIONING THE PLATFORM

- Ensure that the turntable is unlocked,  **SAFETY COMPONENTS: TURNTABLE LOCKING PIN**.

Note: the turntable must be locked when transporting and lifting the machine,  **TRANSPORT AND LIFTING: TRANSPORT INSTRUCTIONS** and  **TRANSPORT AND LIFTING: LIFTING INSTRUCTIONS**.

- Switch on the machine.
- Press and hold down the foot switch.
- Use the appropriate switches and the appropriate control handles to position the platform.
- Release the foot switch.

ACTIVATING SIMULTANEOUS FUNCTIONS

4 machine functions can be activated at the same time.

Note: the audible warning sounds twice when machine functions cannot be operated simultaneously.

EMERGENCY STOP

- Press the emergency stop button (OFF position).

FUNCTIONS LOCKED

Certain functions of the machine are locked :

- When the load in the platform has reached the maximum load capacity (overload warning).
- When the frame is tilted by more than the maximum authorised value (tilt warning).
- When an oscillating axle locking fault occurs (slew lock fault).
- When the battery charge level is less than or equal to 5% (battery charge level very low).

MACHINE IN TRANSPORT POSITION

FROM THE GROUND LEVEL CONTROL PANEL

	WARNING OVERLOAD	TILT WARNING	BATTERY CHARGE LEVEL VERY LOW
		SLEW LOCK FAULT	
Tilt the platform/jib (up/down)			
Raise/lower the jib			
Extend the telescopic arm			
Raise the main arm			
Raise the secondary arm			
Turn the turntable (left/right)			

FROM THE CONTROL PANEL IN THE PLATFORM

	WARNING OVERLOAD	TILT WARNING	BATTERY CHARGE LEVEL VERY LOW
		SLEW LOCK FAULT	
Drive (forwards/backwards)			
Steer (left/right)			
Turn the platform (left/right)			
Tilt the platform/jib (up/down)			
Raise/lower the jib			
Extend the telescopic arm			
Raise the main arm			
Raise the secondary arm			
Turn the turntable (left/right)			

FROM THE GROUND LEVEL CONTROL PANEL

	OVERLOAD WARNING	TILT WARNING	BATTERY CHARGE LEVEL VERY LOW
		SLEW LOCK FAULT	
Tilt the platform/jib (up/down)			
Raise/lower the jib			
Extend the telescopic arm			
Retract the telescopic arm			
Raise the main arm			
Lower the main arm			
Raise the secondary arm			
Lower the secondary arm			
Turn the turntable (left/right)			

FROM THE CONTROL PANEL IN THE PLATFORM

	OVERLOAD WARNING	TILT WARNING	BATTERY CHARGE LEVEL VERY LOW
		SLEW LOCK FAULT	
Drive (forwards/backwards)			
Steer (left/right)			
Turn the platform (left/right)			
Raise/lower the jib			
Extend the telescopic arm			
Retract the telescopic arm			
Raise the main arm			
Lower the main arm			
Raise the secondary arm			
Lower the secondary arm			
Turn the turntable (left/right)			

CHARGING THE BATTERIES

⚠ IMPORTANT ⚠

Charge the batteries in a well-ventilated area, protected from sunlight and rain.

Do not charge the batteries if the electrolyte temperature is over 40 °C.

Leave the left and right turntable covers open while the batteries are charging.

No naked flames or sparks and no smoking near to the batteries while they are charging.

At all times, ensure that the positive terminals of the batteries cannot come into contact with the negative terminals or with the machine's metal parts.

⚠ IMPORTANT ⚠

Connect the battery charger to a 230 V/50 Hz power source delivering 16 A protected by a 30 mA ground fault circuit interrupter.

Do not interrupt the charging cycle. Refer to the information indicated on the ground level screen.

Do not charge the batteries during a lightning storm.

Do not leave the battery charger connected during a lightning storm.

Note: the built-in battery charger can be used to charge the 48 V batteries and the 12 V battery.

Note: it takes approximately 9 hours to charge from 20% to 100%.

Note: it is recommended to charge the batteries at the end of each day of use only if the charge level is below 50%,

◀ GROUND LEVEL SCREEN and ◀ PLATFORM SCREEN.

- Put the machine in transport position, put the turntable and platform in neutral position, ◀ OPERATING THE MACHINE: TRANSPORT/WORKING POSITION.
- Switch off the machine. Remove the key.
- Open the left and right turntable covers.
- Connect the battery charger plug ① to a 230 V power source.
- The charging cycle should start, ◀ GROUND LEVEL SCREEN.

Note: the screen in the platform is off when the battery charger is switched on.

- Wait for the charging cycle to finish, ◀ GROUND LEVEL SCREEN.
- Disconnect the electrical plug.
- Switch on the machine.
- Check the battery charge level, ◀ GROUND LEVEL SCREEN or ◀ PLATFORM SCREEN.
- Close the left and right turntable covers.
- Switch off the machine.



EMERGENCY CONTROLS

⚠ IMPORTANT ⚠

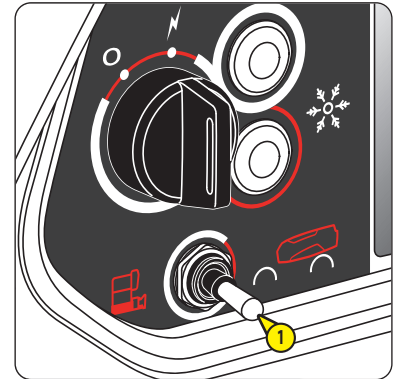
This procedure should be read and fully understood by the operator and any other persons likely to be involved with working on the machine in the event of a breakdown or a person getting trapped in the platform.

SHOULD THE USER FEEL ILL - PRIORITY CONTROLS FROM THE GROUND

If the operator in the platform should fall ill or find himself incapable of manoeuvring, somebody on the ground can take over the machine controls from the ground level control panel.

1- If the machine is switched on and the emergency stop button in the platform is in the ON position (the ground level screen is turned on):

- Push and hold the activation switch ① to the right  (ground controls position).
- Use the appropriate control keys to position the platform.
- Release the activation switch.



2- If the machine is switched on and the emergency stop button in the platform is in the OFF position (the ground level screen is turned off):

- Push and hold the activation switch ① to the right  (ground controls position).

Result:

- The ground level screen comes on,  GROUND LEVEL SCREEN.
- Use the appropriate control keys to position the platform.
- Release the activation switch.

3- If the control keys are not working correctly:

-  IF THERE IS A BREAKDOWN - EMERGENCY CONTROLS FROM THE GROUND.

IF THERE IS A BREAKDOWN - EMERGENCY CONTROLS FROM THE PLATFORM

⚠ IMPORTANT ⚠

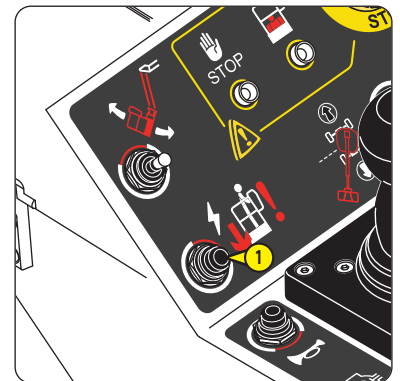
The backup pump should be activated for a maximum of 4 minutes, then wait 10 minutes before reactivating the pump for a new 4 minute cycle.

Do not try to activate simultaneous functions.

Activate the machine's functions using the backup pump when the electric pump is not working:

- Press the backup pump pushbutton ① and hold it down.
- Use the appropriate switch or the appropriate control handle to position the platform.
- Release the backup pump pushbutton.

Note: it is not possible to drive/steer the machine.



IF THERE IS A BREAKDOWN - EMERGENCY CONTROLS FROM THE GROUND

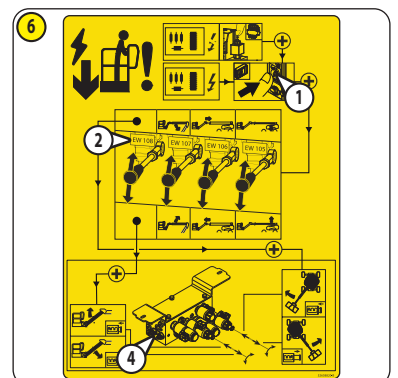
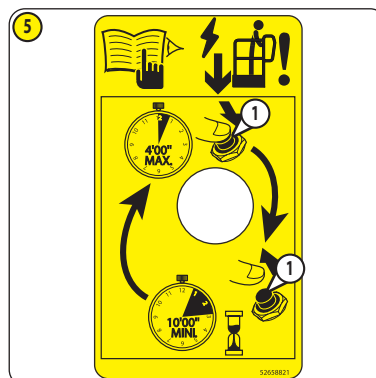
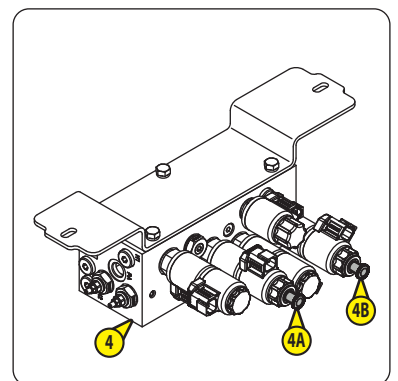
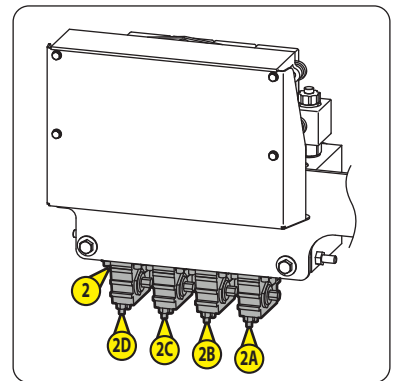
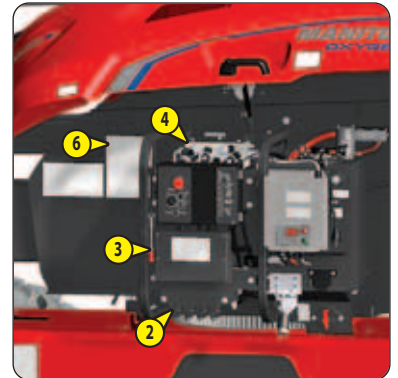
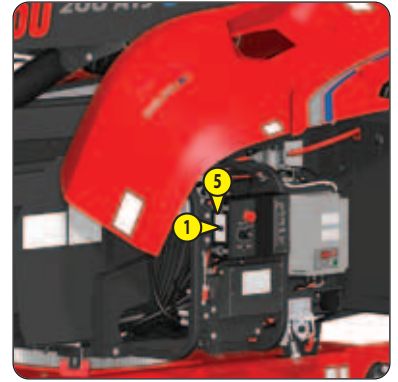
⚠ IMPORTANT ⚠

*The tilt warning and the overload warning may no longer be active while the emergency controls are in use.
The backup pump should be activated for a maximum of 4 minutes, then wait 10 minutes before reactivating the pump for a new 4 minute cycle.*

Activate the machine's functions using the backup pump when the control system is not working:

- Open the right turntable cover.
- Make sure that the battery cut-off is in the ON position.
- Locate the various components of the emergency controls:
 - Backup pump pushbutton ①.
 - Proportional distributor ② and manual controls ②A to ②D.
 - Lever ③.
 - Secondary distributor ④ and valve buttons ④A and ④B.
- Activate the machine's functions described on the following pages to position the platform.

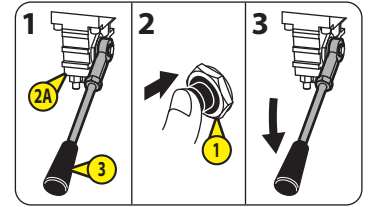
Note: ⚡ STICKERS: BACKUP PUMP ⑤ and ⚡ STICKERS: EMERGENCY CONTROLS PROCEDURE ⑥.



A- RAISE THE SECONDARY ARM

- 1- Place the lever **3** on the manual control **2A**.
- 2- Press the backup pump pushbutton **1** and hold it down.
- 3- Push the lever down to raise the secondary arm, stop when the desired position is reached. Release the backup pump pushbutton.

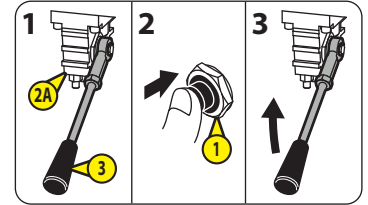
Note: remove the lever, put it back in place and close the right turntable cover when no other machine functions are necessary.



B- LOWER THE SECONDARY ARM

- 1- Place the lever **3** on the manual control **2A**.
- 2- Press the backup pump pushbutton **1** and hold it down.
- 3- Pull the lever up to lower the secondary arm, stop when the desired position is reached. Release the backup pump pushbutton.

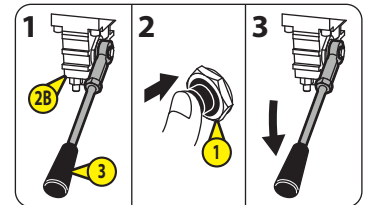
Note: remove the lever, put it back in place and close the right turntable cover when no other machine functions are necessary.



C- EXTEND THE TELESCOPIC ARM

- 1- Place the lever **3** on the manual control **2B**.
- 2- Press the backup pump pushbutton **1** and hold it down.
- 3- Push the lever down to extend the telescopic arm, stop when the desired position is reached. Release the backup pump pushbutton.

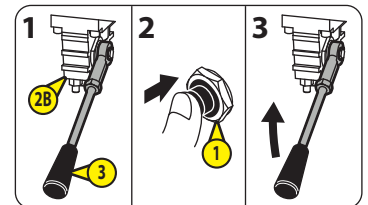
Note: remove the lever, put it back in place and close the right turntable cover when no other machine functions are necessary.



D- RETRACT THE TELESCOPIC ARM

- 1- Place the lever **3** on the manual control **2B**.
- 2- Press the backup pump pushbutton **1** and hold it down.
- 3- Pull the lever up to retract the telescopic arm, stop when the desired position is reached. Release the backup pump pushbutton.

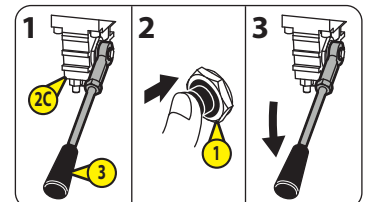
Note: remove the lever, put it back in place and close the right turntable cover when no other machine functions are necessary.



E- RAISE THE MAIN ARM

- 1- Place the lever **3** on the manual control **2C**.
- 2- Press the backup pump pushbutton **1** and hold it down.
- 3- Push the lever down to raise the main arm, stop when the desired position is reached. Release the backup pump pushbutton.

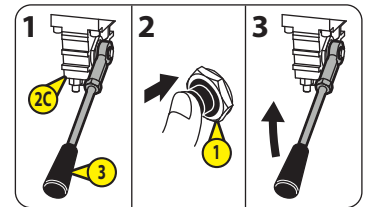
Note: remove the lever, put it back in place and close the right turntable cover when no other machine functions are necessary.



F- LOWER THE MAIN ARM

- 1- Place the lever **3** on the manual control **2C**.
- 2- Press the backup pump pushbutton **1** and hold it down.
- 3- Pull the lever up to lower the main arm, stop when the desired position is reached. Release the backup pump pushbutton.

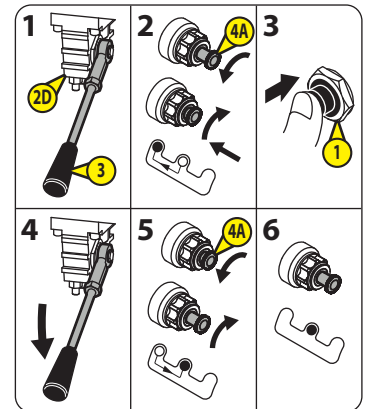
Note: remove the lever, put it back in place and close the right turntable cover when no other machine functions are necessary.



G- RAISE THE JIB

- 1- Place the lever **3** on the manual control **2D**.
- 2- Turn the button of the valve **4A** anticlockwise, push it then turn it clockwise until it stops.
- 3- Press the backup pump pushbutton **1** and hold it down.
- 4- Push the lever down to raise the jib, stop when the desired position is reached. Release the backup pump pushbutton.
- 5- Turn the button of the valve **4A** anticlockwise, release it then turn it clockwise until it stops.
- 6- Ensure that the button of the valve is in the central position:
 - Press the backup pump pushbutton and hold it down.
 - Push the lever down: the jib should not move.
 - Release the lever and the backup pump pushbutton.

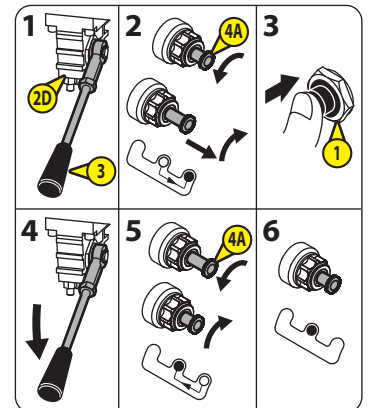
Note: remove the lever, put it back in place and close the right turntable cover when no other machine functions are necessary.



H- LOWER THE JIB

- 1- Place the lever **3** on the manual control **2D**.
- 2- Turn the button of the valve **4A** anticlockwise, pull it then turn it clockwise until it stops.
- 3- Press the backup pump pushbutton **1** and hold it down.
- 4- Push the lever down to lower the jib, stop when the desired position is reached. Release the backup pump pushbutton.
- 5- Turn the button of the valve **4A** anticlockwise, release it then turn it clockwise until it stops.
- 6- Ensure that the button of the valve is in the central position:
 - Press the backup pump pushbutton and hold it down.
 - Push the lever down: the jib should not move.
 - Release the lever and the backup pump pushbutton.

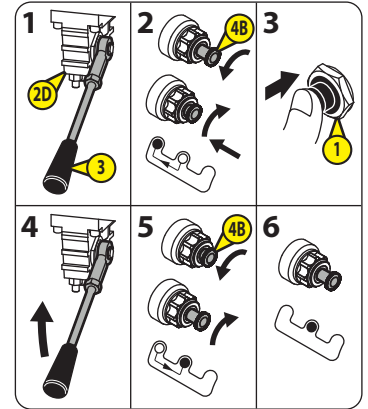
Note: remove the lever, put it back in place and close the right turntable cover when no other machine functions are necessary.



I- TURN THE TURNTABLE TO THE LEFT

- 1- Place the lever **3** on the manual control **2D**.
- 2- Turn the button of the valve **4B** anticlockwise, push it then turn it clockwise until it stops.
- 3- Press the backup pump pushbutton **1** and hold it down.
- 4- Pull the lever up to turn the turntable to the left, stop when the desired position is reached. Release the backup pump pushbutton.
- 5- Turn the button of the valve **4B** anticlockwise, release it then turn it clockwise until it stops.
- 6- Ensure that the button of the valve is in the central position:
 - Press the backup pump pushbutton and hold it down.
 - Pull the lever up: the turntable should not move.
 - Release the lever and the backup pump pushbutton.

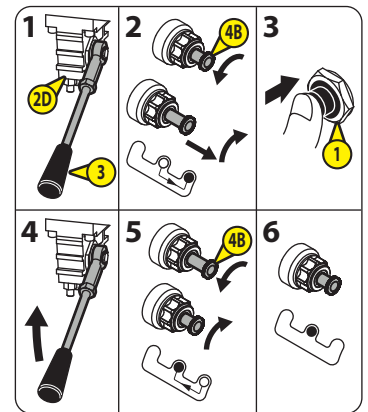
Note: remove the lever, put it back in place and close the right turntable cover when no other machine functions are necessary.



J- TURN THE TURNTABLE TO THE RIGHT

- 1- Place the lever **3** on the manual control **2D**.
- 2- Turn the button of the valve **4B** anticlockwise, pull it then turn it clockwise until it stops.
- 3- Press the backup pump pushbutton **1** and hold it down.
- 4- Pull the lever up to turn the turntable to the right, stop when the desired position is reached. Release the backup pump pushbutton.
- 5- Turn the button of the valve **4B** anticlockwise, release it then turn it clockwise until it stops.
- 6- Ensure that the button of the valve is in the central position:
 - Press the backup pump pushbutton and hold it down.
 - Pull the lever up: the turntable should not move.
 - Release the lever and the backup pump pushbutton.

Note: remove the lever, put it back in place and close the right turntable cover when no other machine functions are necessary.



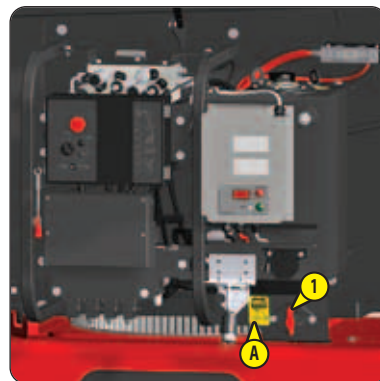
STANDARD EQUIPMENT

BATTERY CUT-OFF

2 positions:

- Off "OFF": the handle ① is vertical.
- On "ON": the handle ① is horizontal.

Note: STICKERS: BATTERY CUT-OFF ④.



OSCILLATING FRONT AXLE

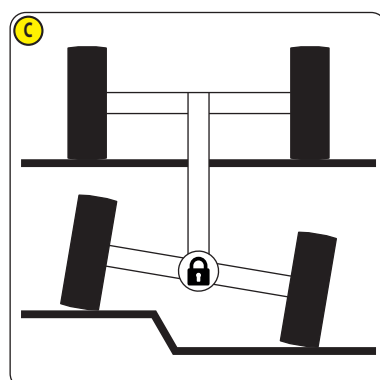
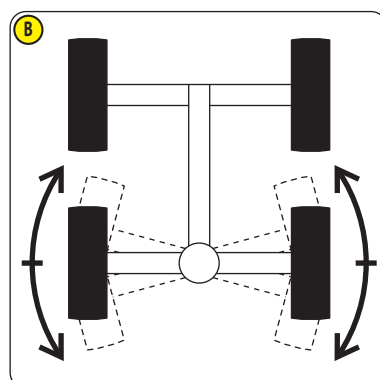
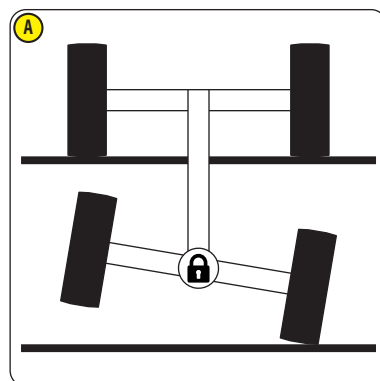
IMPORTANT

When driving the machine in the working position, only 3 wheels could be in contact with the ground and the machine could tip over (illustration ④).

④: axle oscillation is unlocked when the machine is in transport position.

④: axle oscillation is locked when the machine is in working position.

Note: certain machine functions are locked when an oscillating axle locking fault occurs, OPERATING THE MACHINE: LOCKED FUNCTIONS.



OPTIONS

KEY LOCK FOR TURNTABLE COVERS

⚠ IMPORTANT ⚠

To guarantee access to the emergency controls, the right turntable cover must be unlocked before using the machine from the platform.

230 V ELECTRIC POWER SOCKET IN THE PLATFORM

This option includes:

- 1 plug ① at the back of the turntable.
- 1 electric power socket ② in the platform.
- 1 electric unit ③A with a 30 mA ground fault circuit interrupter.

INSTRUCTIONS: ELECTRIC POWER SOCKET IN THE PLATFORM

⚠ IMPORTANT ⚠

Connect the plug to a 230 V/50 Hz power source that delivers 16 A.

Only connect electrical appliances that operate at 230 V/50 Hz, 16 A maximum.

Do not connect extension leads, power supply bars or plugs with multiple sockets to the electric power socket.

- Connect the plug ① to a power source.
- Plug an electrical appliance into the electric power socket ②.
- Turn on the electrical appliance.
- Switch off the electrical appliance when the work is finished.
- Disconnect the electrical plug.

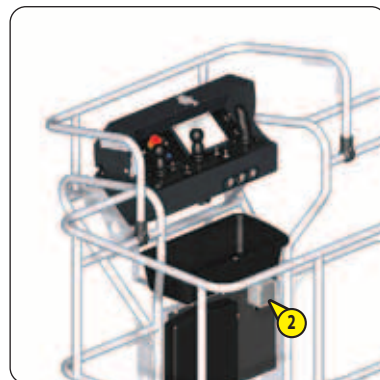
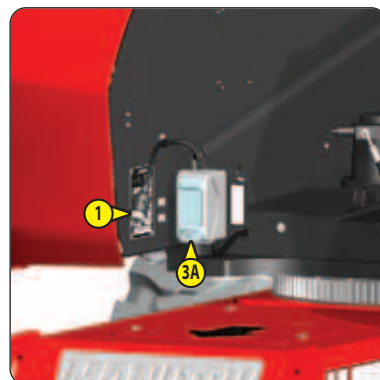
INSTRUCTIONS: GROUND FAULT CIRCUIT INTERRUPTER

To reset the ground fault circuit interrupter:

- Switch off the electrical appliance.
- Open the electric unit's cover ③A.
- Push the switch ③B to the ON position.

Result:

- The switch must remain in the ON position, the indicators ③C and ③D should be red.
- Close the electric unit's cover.



HYDRAULIC OIL HEATER

⚠ IMPORTANT ⚠

Connect the hydraulic oil heater to a 230 V/50 Hz power source delivering 16 A protected by a 30 mA ground fault circuit interrupter.

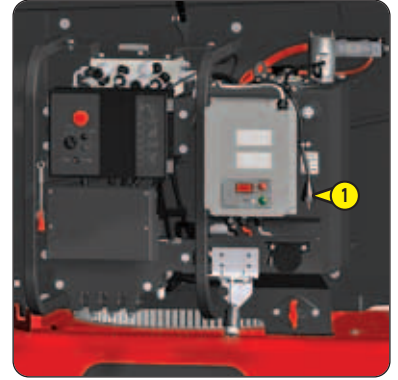
Before connecting the hydraulic oil heater:

- The machine must be in transport position, <4 OPERATING THE MACHINE: TRANSPORT/WORKING POSITION.
- The jib should be completely lowered.
- The hydraulic oil level must be checked, <4 3 - MAINTENANCE: DAILY MAINTENANCE.
- The machine should be switched on.

The hydraulic oil heater is designed to heat the hydraulic oil when the outside temperature is below -15 °C.

- Open the right turntable cover.
- Locate the electrical plug ①.
- Connect it to a power source.
- Wait for the required heating time then disconnect it.
- Close the right turntable cover.

Note: the heating time depends on the ambient temperature and other factors.
Adjust the heating time by observing the machine operating conditions.

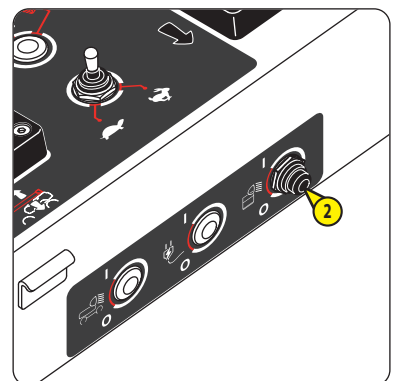
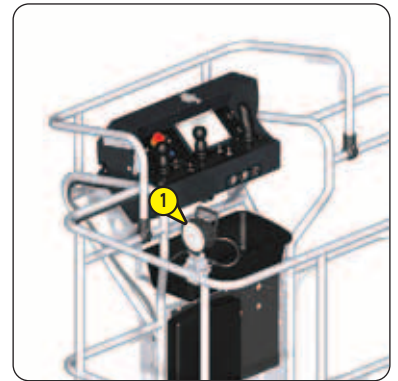


WORKLIGHT IN THE PLATFORM

INSTRUCTIONS

Note: the machine must be switched on.

- Press and release the worklight pushbutton ② to turn the worklight on or off ①.

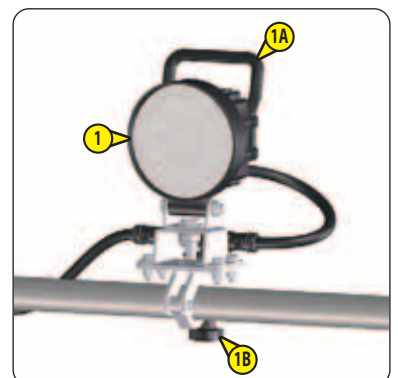


ADJUSTMENT

Use the handle ①A to angle the worklight ① left, right, up or down.

The worklight can be moved along the railings:

- Loosen the wheel ①B.
- Move the worklight.
- Tighten the wheel.



SECONDARY PROTECTION SYSTEM SPS

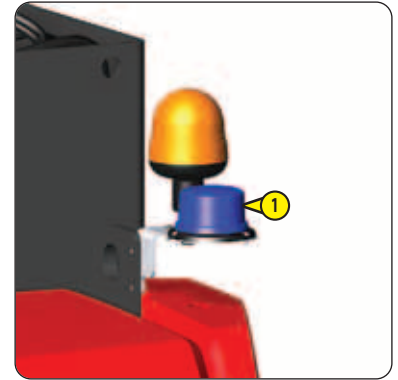
⚠ IMPORTANT ⚠

Activate the machine's functions extremely carefully during attempts at clearance.

If the audible alarm sounds intermittently and rapidly and the flashing light SPS ① flashes rapidly: the machine can be used, but the secondary protection system SPS is disabled; consult the maintenance personnel.

Note: the audible alarm sounds once and the flashing light SPS ① flashes several times when the machine is powered up. This indicates that the secondary protection system SPS is operating correctly.

Note: the flashing light SPS ① may be blue or red depending on the country.



SECONDARY PROTECTION SYSTEM SPS WARNING

This occurs if you are trapped between the safety cable SPS ② and a structure ①A:

- All the machine's functions are shut down and locked.
- A warning page is displayed on the ground level screen and on the screen in the platform.
- The horn sounds intermittently and the flashing light SPS ① flashes.

If you are still trapped between the safety cable SPS and the structure:

- Press and release the reset pushbutton SPS ③.

Result:

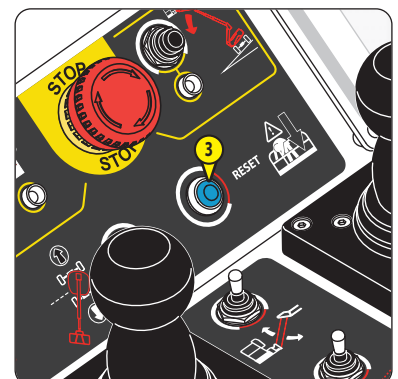
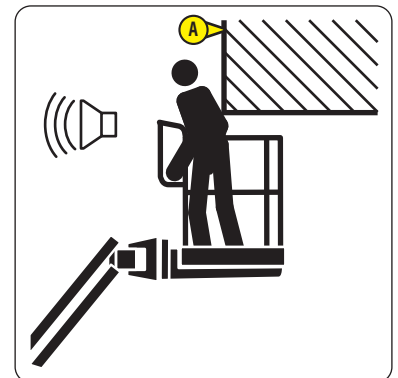
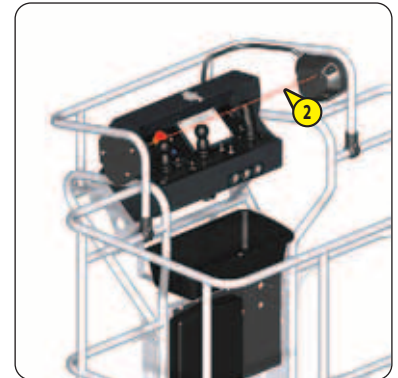
- The machine's functions are unlocked, use them to get free.
- The warning page is no longer displayed once you are free.
- The horn will stop and the flashing light SPS will stop flashing when you are no longer trapped.

If you are no longer trapped between the safety cable SPS and the structure:

- Press and release the reset pushbutton SPS ③.

Result:

- All the machine's functions are unlocked.
- The warning page is no longer displayed.
- The horn stops and the flashing light SPS goes out.



TRANSPORT AND LIFTING

TRANSPORT INSTRUCTIONS

⚠ IMPORTANT ⚠

Check that the safety instructions associated with the transport vehicle have been correctly applied before loading the machine and ensure that the driver of the vehicle has been informed of the dimensional characteristics and total weight of the machine.

Ensure that the transport vehicle has adequate dimensions and load capacity for transporting the machine, <4 SPECIFICATIONS and STICKERS.

It is essential that the turntable is locked when the machine is being transported, <4 SAFETY COMPONENTS: TURNTABLE LOCKING PIN.

Covers must be closed and locked (if applicable) while the machine is being transported.

LOADING/UNLOADING THE MACHINE

⚠ IMPORTANT ⚠

The transport vehicle must be parked on a level surface, the wheels must be chocked to prevent it from rolling during loading and unloading of the machine.

Turntable rotation is prohibited while the machine is being loaded onto the transport vehicle and during unloading.

The turntable must be locked before loading the machine onto the transport vehicle or before unloading it, <4 SAFETY COMPONENTS: TURNTABLE LOCKING PIN.

The machine must be loaded or unloaded using a winch if the loading ramps are slippery, <4 FREEWHEEL FOR TOWING/WINCHING.

The angle of the loading ramps must not exceed the maximum slope accessible, <4 SPECIFICATIONS.

The machine must be loaded and unloaded using a crane if the angle of the loading ramps exceeds the maximum slope accessible, <4 TRANSPORT AND LIFTING: LIFTING INSTRUCTIONS.



LOADING THE MACHINE ONTO THE TRANSPORT VEHICLE

- From the ground control panel:
 - Switch on the machine.
 - Put the machine in transport position; put the turntable in neutral position <4 OPERATING THE MACHINE: TRANSPORT/WORKING POSITION.
 - Fully lower the jib.
- Lock the turntable, <4 SAFETY COMPONENTS: TURNTABLE LOCKING PIN.
- Climb into the platform.
- Put the platform into the neutral position, <4 OPERATING THE MACHINE: TRANSPORT/WORKING POSITION.
- Raise the jib slightly to prevent the platform hitting the ground or the loading ramps.
- Select tortoise speed .
- Drive the machine slowly forwards with the platform at the bottom of the slope as shown in the illustration.

UNLOADING THE MACHINE FROM THE TRANSPORT VEHICLE

Note: the machine is in transport position , <4 CONFIGURING THE PLATFORM FOR TRANSPORT on the next page.

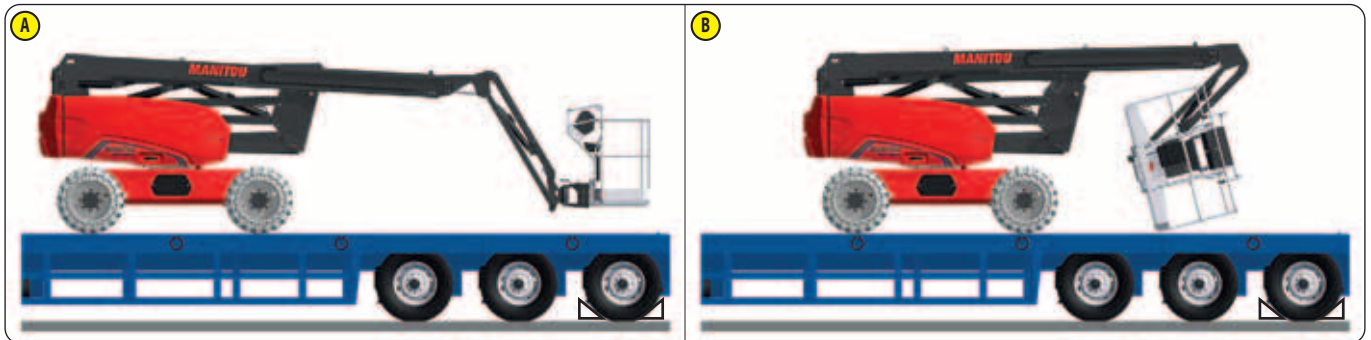
- Ensure that the turntable is locked, <4 SAFETY COMPONENTS: TURNTABLE LOCKING PIN.
- From the ground control panel:
 - Switch on the machine.
- Climb into the platform.
- Raise the jib slightly to prevent the platform hitting the ground or the loading ramps.
- Select tortoise speed .
- Reverse the machine slowly with the platform at the bottom of the slope as shown in the illustration.

⚠ IMPORTANT ⚠

Turntable rotation is prohibited once on the transport vehicle.

It is essential that the turntable remains locked once on the transport vehicle, ⚠ SAFETY COMPONENTS: TURNABLE LOCKING PIN.

The machine must be transported in transport position Ⓐ or in folded position Ⓑ.



TRANSPORT POSITION Ⓐ

Note: the machine is powered up. The machine is in transport position. The turntable and the platform are in the neutral position. The turntable is locked.

- Fully lower the jib.
- Get out of the platform.
- Switch off the machine. Remove the key.

FOLDED POSITION Ⓑ

Note: the machine is powered up. The machine is in transport position. The turntable and the platform are in the neutral position. The turntable is locked.

- Fully lower the jib.
- Turn the platform to the left until it stops.
- Get out of the platform.
- From the ground control panel:
 - Raise the main arm slightly.
 - Tilt the platform/jib fully downwards. Ensure that the platform cannot hit the transport vehicle.
 - Lower the main arm so that the platform is approximately 10 cm away from the transport vehicle.
 - Switch off the machine. Remove the key.

MOVE FROM THE FOLDED POSITION Ⓑ TO THE TRANSPORT POSITION Ⓐ

Note: the turntable is locked.

- From the ground control panel:
 - Switch on the machine.
 - Raise the main arm slightly.
 - Tilt the platform/jib upwards until the platform floor is horizontal. Ensure that the platform cannot hit the transport vehicle.
 - Fully lower the main arm.
- Climb into the platform.
- Turn the platform to the right in the neutral position, ⚠ OPERATING THE MACHINE: TRANSPORT/WORKING POSITION.
- Get out of the platform.
- Switch off the machine.

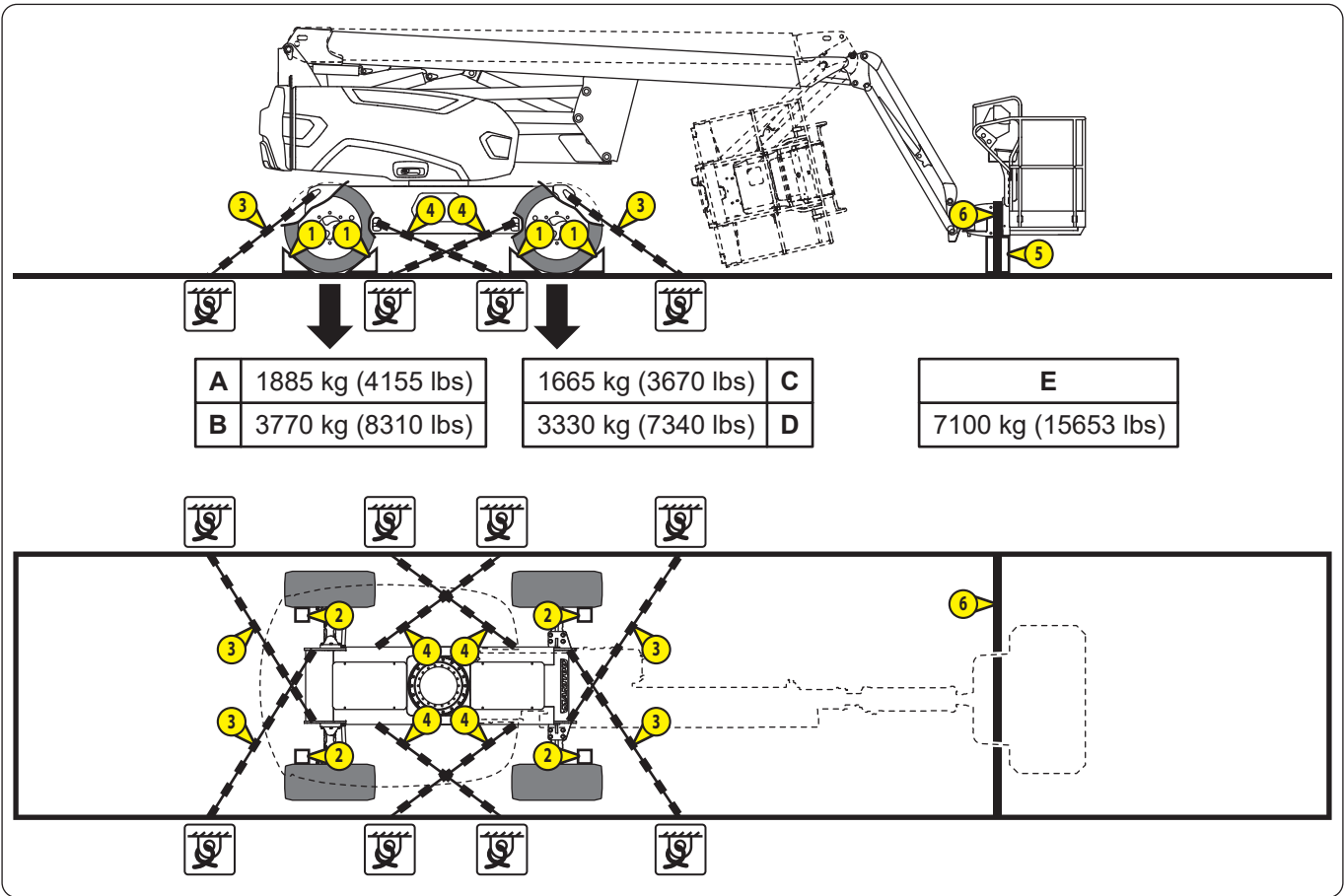
⚠ IMPORTANT ⚠

Turntable rotation is prohibited once on the transport vehicle.

It is essential that the turntable remains locked once on the transport vehicle, ⚠ SAFETY COMPONENTS: TURNTABLE LOCKING PIN.

The machine has 8 anchorage points (⚠ STICKERS: ANCHORAGE POINTS), comply with the local, government and national regulations in force concerning the minimum number of anchorage points required when transporting a machine.

Make sure that the chains and/or straps are not in contact with the wheels and that the machine is properly secured to the transport vehicle.



KEY:

A	C	LOAD ON 1 WHEEL
B	D	LOAD ON 2 WHEELS
E		TOTAL MASS

Note: the machine is powered down. The machine is in transport position (A) or folded (B) position, ⚠ CONFIGURING THE MACHINE FOR TRANSPORT. The turntable is locked.

- Fix chocks (1) to the transport vehicle at the front and rear of each of the machine's wheels.
- Fix chocks (2) to the transport vehicle on the inside of each of the machine's wheels.
- Lash the machine to the transport vehicle with straps or chains (3) and/or (4) (according to the regulations in force) attached to the machine's anchorage points, ⚠ STICKERS: ANCHORAGE POINTS.
- Only for transport position (A):
 - Place a wooden chock (5) under the overload system as shows in the illustration.
 - Strap the platform down (6). Do not overtighten to avoid damage.

Note: ⚠ STICKERS: SECURING.

⚠ IMPORTANT ⚠

The machine should be towed or winched in transport position, towing or winching the machine in working position is prohibited,  **OPERATING THE MACHINE:**
TRANSPORT/WORKING POSITION.

Always use a suitable tow bar to tow the machine.

Always use a suitable winch for winching the machine.

Before releasing the brakes:

- The machine must be on a level surface.

- The wheels must be chocked.

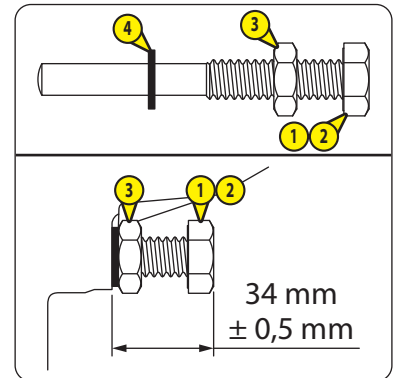
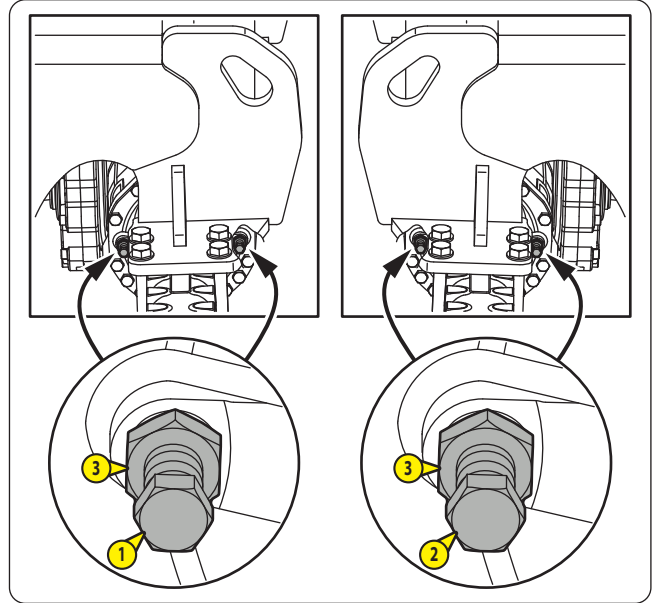
During towing or winching of the machine:

- The platform should be empty.

- Do not exceed 5 km/h.

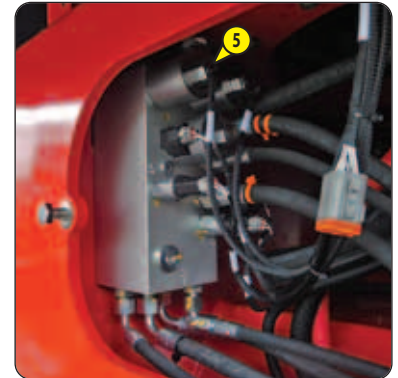
FREEWHEEL AND TOWING/WINCHING

- Switch off the machine.
- Attach the tow bar or the winch to the machine's anchorage points,  **STICKERS: ANCHORAGE POINTS.**
- Release the brakes:
 - Locate the 2 screws  and the 2 screws  to the left and right of the rear axle.
 - Loosen the 2 locknuts  by about 8 mm.
 - Tighten the screws  and  by hand to the hard spot.
 - Tighten the 2 screws alternately  by a quarter turn each time until you have gone all the way round.
 - Tighten the 2 screws alternately  by a quarter turn each time until you have gone all the way round.
- Make sure the route is free of any obstruction.
- Remove the wheel chocks.
- Slowly tow/win the machine.
- Chock the wheels when the platform is in the desired position.



REAPPLYING THE BRAKES

- Loosen the 2 screws alternately  by a quarter turn each time until you have gone all the way round.
- Loosen the 2 screws alternately  by a quarter turn each time until you have gone all the way round.
- Unscrew the 4 screws  and  completely.
- Change the 4 seals .
- Lubricate the screws  and  with MANITOU BLACK MULTI-PURPOSE LUBRICANT ( 3 - MAINTENANCE: LUBRICANTS) and put them back in place.
- Adjust the distance between the body of the axles and the screw heads = 34 mm ±0.5 mm.
- Tighten the 4 locknuts  and check the distances between the body of the axle and the screw heads.



TEST THE BRAKES

- Remove the right frame cover.
- Locate the coil  on the hydraulic block and disconnect it.
- Switch on the machine.
- Try to drive the machine forwards or backwards.

Result:

- The machine should remain stationary.
- Reconnect the coil .
- Refit the right frame cover.
- Switch off the machine.

⚠ IMPORTANT ⚠

The surface of the unloading/destination zone must be solid, level and even.

If the unloading/destination zone is a transport vehicle:

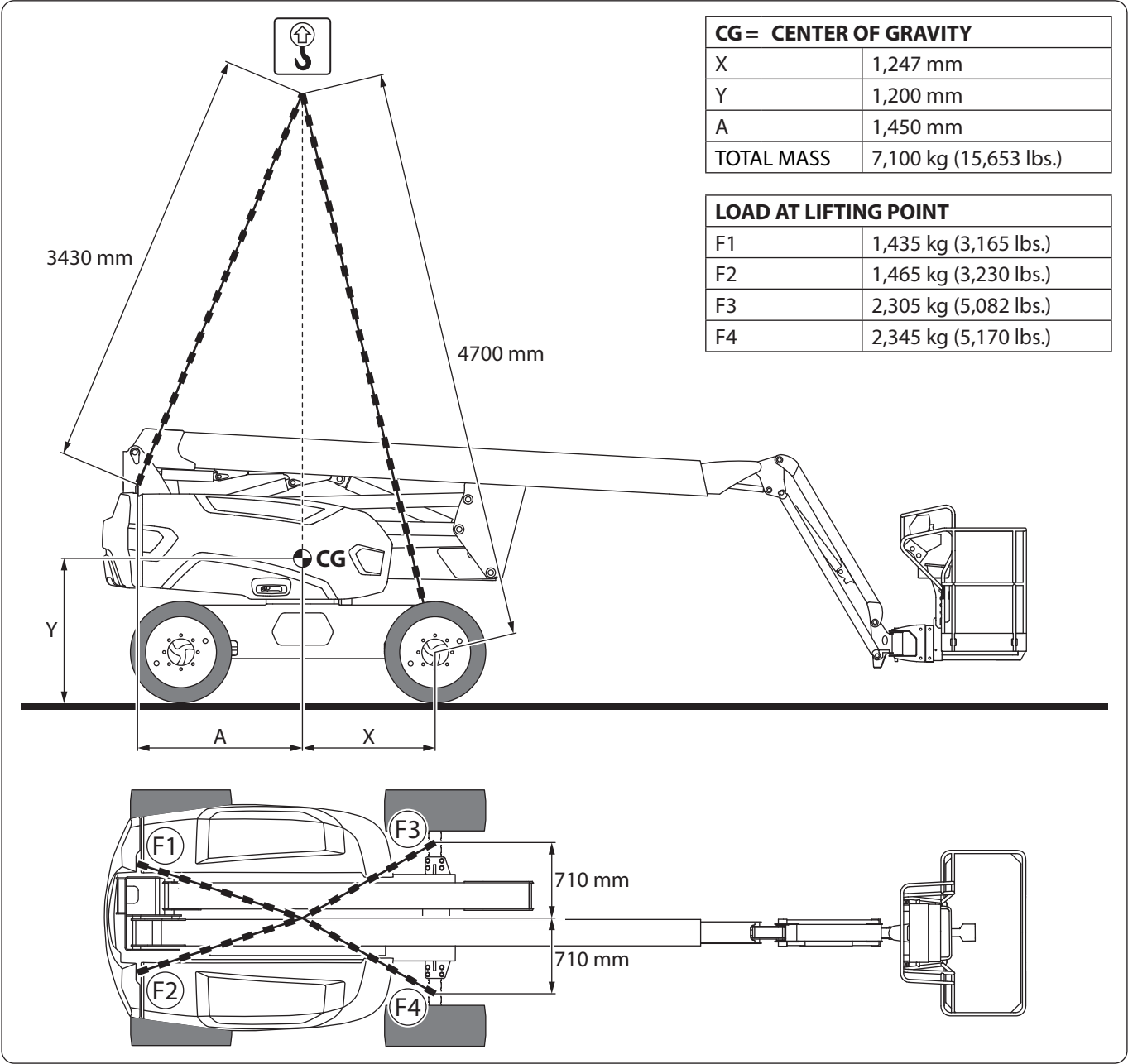
- The transport vehicle must be stationary on firm, level ground.
- The wheels of the transport vehicle must be chocked.

Make sure that the slings are solid enough to bear the weight of the machine.

Make sure that the lifting capacity of the crane is sufficient to bear the weight of the machine.

It is essential that the turntable is locked when the machine is being lifted, ⚠ SAFETY COMPONENTS: TURNABLE LOCKING PIN.

Covers must be closed and locked (if applicable) while the machine is being lifted.



- Mark out a large safety zone around the machine.
- Switch on the machine.
- Put the machine in transport position, put the turntable and platform in neutral position, OPERATING THE MACHINE: TRANSPORT/WORKING POSITION.
- Fully lower the jib.
- Lock the turntable, SAFETY COMPONENTS: TURNTABLE LOCKING PIN.
- Switch off the machine. Remove the key.
- Attach slings to the 2 lifting points on the turntable, STICKERS: LIFTING POINT.
- Attach the slings around the rear axle as shown in the illustration.
- Attach the slings at 1 point to the crane's lifting hook.
- Slowly raise the crane's lifting hook until the slings are moderately taut.
- If necessary, adjust the slings to prevent damage and keep the machine level.
- Make sure that there is nobody in the safety zone.
- Slowly lift the machine and move it to the destination zone.
- Slowly lower the machine until the 4 wheels are in contact with the destination surface.
- Lower the crane's lifting hook until the slings are no longer taut.
- Detach the slings.

Note: STICKERS: LIFTING.

3 - MAINTENANCE

3 - MAINTENANCE

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INTRODUCTION

MAINTENANCE OPERATIONS REQUIRE SPECIFIC PRECAUTIONS.

⚠ IMPORTANT ⚠

Unless specific instructions are given, during maintenance operations:

- *The machine should be switched off.*
- *The machine should be on a level surface. The wheels must be chocked.*
- *The machine should be in transport position; the turntable and the platform should be in neutral position, 2 - DESCRIPTION: OPERATING THE MACHINE: TRANSPORT/WORKING POSITION.*
- *The jib should be completely lowered.*
- *The platform should be empty.*
- *It is essential that the turntable is locked, 2 - DESCRIPTION: SAFETY COMPONENTS: TURNTABLE LOCKING PIN.*

ORIGINAL MANITOU SPARE PARTS AND EQUIPMENT

OUR MACHINES MUST BE SERVICED USING ORIGINAL MANITOU PARTS.

BY ALLOWING THE USE OF NON-ORIGINAL MANITOU PARTS, YOU RISK:

⚠ IMPORTANT ⚠

THE USE OF COUNTERFEIT PARTS OR COMPONENTS NOT APPROVED BY THE MANUFACTURER, MEANS YOU LOSE THE BENEFIT OF THE CONTRACTUAL GUARANTEE.

- Legally, being held responsible in the event of an accident.
- Technically, causing operating malfunctions and reducing the machine's service life.

USING ORIGINAL MANITOU PARTS FOR MAINTENANCE OPERATIONS MEANS THAT YOU BENEFIT FROM OUR KNOW-HOW

Through its network, MANITOU provides the user with:

- Know-how and competence.
- The guarantee of high-quality work.
- Original replacement parts.
- Help with preventive maintenance.
- Efficient help with diagnosis.
- Improvements due to experience feedback.
- Operator training.
- Only the MANITOU network has detailed knowledge of the design of the machine and therefore the best technical ability to provide maintenance.

⚠ IMPORTANT ⚠

ORIGINAL REPLACEMENT PARTS ARE DISTRIBUTED EXCLUSIVELY BY MANITOU AND ITS DEALER NETWORK.

The dealer network list is available on the MANITOU website: www.manitou.com

DAILY AND MONTHLY MAINTENANCE

⚠ IMPORTANT ⚠

DAILY MAINTENANCE MUST BE CARRIED OUT BY THE OPERATOR BEFORE USING THE MACHINE.
MONTHLY MAINTENANCE MUST BE CARRIED OUT BY THE MAINTENANCE PERSONNEL.

➡ DAILY MAINTENANCE

- CHECK	General inspection	3-12
- CHECK	48 V battery charge level	3-12
- CHECK	Hydraulic oil level	3-12
- CHECK	48 V battery fluid level	3-13
- CHECK	Machine operation	3-14

➡ MONTHLY MAINTENANCE OR EVERY 50 HOURS OF SERVICE

ALSO PERFORM THE DAILY MAINTENANCE.

- CHECK	Reduction gearbox seal	3-24
- CHECK	Front and rear axle differential seals	3-24
- CHECK	Front and rear wheel reducer seals	3-24
- LUBRICATE	Front axle	3-25
- CHECK	230 V electric power socket in the platform (OPTION)	3-26

COMPULSORY SERVICES AND PERIODIC MAINTENANCE

⚠ IMPORTANT ⚠

THE COMPULSORY SERVICES AND PERIODIC MAINTENANCE MUST BE CARRIED OUT BY AN APPROVED PROFESSIONAL FROM THE MANITOU NETWORK.

MAINTENANCE SCHEDULE

This schedule enables the compulsory services and periodic maintenance on the machine to be kept up to date by reporting the total number of hours worked and the date of the service.

	↕	↕ OR ↕	↕
WHEN DUE ➡	FIRST 50 HOURS	FIRST 6 MONTHS	FIRST 500 HOURS
MANDATORY SERVICE ➡	FIRST 50 HOURS	FIRST 500 HOURS OR 6 MONTHS	FIRST 500 HOURS OR 6 MONTHS + 2
MACHINE COUNTER ➡			
DATE OF SERVICING ➡			

WHEN DUE ➡	250 H	500 H or 1 YEAR	750 H	1000 H or 2 YEARS*	1250 H
PERIODIC SERVICE ➡	1	1 + 2	1	1 + 2 + 3	1
MACHINE COUNTER ➡					
DATE OF SERVICING ➡					

WHEN DUE ➡	1500 H or 3 YEARS	1750 H	2000 H or 4 YEARS*	2250 H	2500 H or 5 YEARS*
PERIODIC SERVICE ➡	1 + 2 + 4	1	1 + 2 + 3 + 5	1	1 + 2
MACHINE COUNTER ➡					
DATE OF SERVICING ➡					

WHEN DUE ➡	2750 H	3000 H or 6 YEARS*	3250 H	3500 H or 7 YEARS*	3750 H
PERIODIC SERVICE ➡	1	1 + 2 + 3 + 4	1	1 + 2	1
MACHINE COUNTER ➡					
DATE OF SERVICING ➡					

WHEN DUE ➡	4000 H or 8 YEARS*	4250 H	4500 H or 9 YEARS*	4750 H	5000 H or 10 YEARS*
PERIODIC SERVICE ➡	1 + 2 + 3 + 5	1	1 + 2 + 4	1	1 + 2 + 3
MACHINE COUNTER ➡					
DATE OF SERVICING ➡					

WHEN DUE ➡	5250 H	5500 H or 11 YEARS*	5750 H	6000 H or 12 YEARS*
PERIODIC SERVICE ➡	1	1 + 2	1	1 + 2 + 3 + 4 + 5
MACHINE COUNTER ➡				
DATE OF SERVICING ➡				

* ➡ OPTIONAL PERIODIC MAINTENANCE.

COMPULSORY SERVICE - FIRST 50 HOURS

ALSO PERFORM THE MONTHLY MAINTENANCE.

This service must be carried out in the first 50 hours of service.

- CHECK	Wheel nut tightening	3-27
- CHECK	Tightening of the fixing screws for the oscillating cylinders	3-27
- CHECK	Tightening of the fixing screws for the axles	3-28
- CHECK	Tightening of the platform fixing screws	3-37
- CHECK	Tightening of the platform rotation cylinder fixing screws	3-38

COMPULSORY SERVICE - FIRST 500 HOURS OR 6 MONTHS

This service must be carried out after the first 500 hours of service or within the 6 months of commissioning of the machine (whichever occurs first):

FIRST 500 HOURS BEFORE THE FIRST 6 MONTHS

- If the machine has reached the first 500 hours of service before the first 6 months have expired, perform both the compulsory service and periodic 500-hour maintenance ( 2 500H - PERIODIC MAINTENANCE - EVERY 500 HOURS OF SERVICE OR 1 YEAR).

FIRST 6 MONTHS BEFORE THE FIRST 500 HOURS

- If the machine has not completed 500 hours of service in the first 6 months, carry out only the compulsory service.

- CHECK	General inspection	3-12
- CHECK	Machine operation	3-14
- CHECK	Reduction gearbox seal	3-24
- CHECK	Front and rear axle differential seals	3-24
- CHECK	Front and rear wheel reducer seals	3-24
- LUBRICATE	Front axle	3-25
- CHECK	230 V electric power socket in the platform (OPTION)	3-26
- CHECK	Wheel nut tightening	3-27
- CHECK	Tightening of the fixing screws for the oscillating cylinders	3-27
- CHECK	Tightening of the transmission shaft fixing screws	3-27
- CHECK	Tightening of the fixing screws for the axles	3-28
- CHECK	Locking of the front axle oscillating cylinders	3-28
- CHECK	Overload system	3-30
- CHECK	Brakes	3-31
- CHECK	Turntable rotation motor oil level	3-32
- CHECK	Emergency controls	3-32
- LUBRICATE	Shafts, hubs and cylinder rings	3-33
- GREASE	Telescopic arm	3-34
- LUBRICATE	Crown gear	3-34
- CHECK	Tightening of the 12 V electrical connections	3-35
- CHECK	Tightening of the 48 V electrical connections	3-35
- CLEAN	Variable control radiators and fans	3-36
- BLEED	48 V battery cases	3-36
- CHECK	Tilt sensor	3-37
- CHECK	Tightening of the platform fixing screws	3-37
- CHECK	Tightening of the platform rotation cylinder fixing screws	3-38
- CHECK	Telescopic arm setting	3-38
- CHECK	Tightening of the fixing screws for the crown gear	3-39
- CHECK	Tightening of the fixing screws on the turntable rotation motor	3-39
- CHECK	Counterweight fixing screw tightening	3-40
- CHECK	Hydraulic hoses	3-40
- CHECK	Electric pump motor silent blocks *	3-43
- CHECK	Crown gear clearance *	3-43
- CHECK	Speed of hydraulic movements *	3-43
- CHECK	Condition of cylinders *	3-43
- CHECK	Condition of control electric wiring *	3-43

*** Consult your dealer.**

➡ ① 250H - PERIODIC MAINTENANCE - EVERY 250 HOURS OF SERVICE OR 6 MONTHS

ALSO PERFORM THE DAILY MAINTENANCE.

- CHECK	Reduction gearbox seal	3-27
- CHECK	Front and rear axle differential seals	3-27
- CHECK	Front and rear wheel reducer seals	3-27
- CHECK	230 V electric power socket in the platform (OPTION)	3-27
- CHECK	Wheel nut tightening	3-27
- CHECK	Tightening of the fixing screws for the oscillating cylinders	3-27
- CHECK	Tightening of the transmission shaft fixing screws	3-27
- CHECK	Tightening of the fixing screws for the axles	3-28
- CHECK	Locking of the front axle oscillating cylinders	3-28
- CHECK	Overload system	3-30
- CHECK	Brakes	3-31
- CHECK	Turntable rotation motor oil level	3-32
- CHECK	Emergency controls	3-32
- LUBRICATE	Shafts, hubs and cylinder rings	3-33
- GREASE	Telescopic arm	3-34
- LUBRICATE	Crown gear	3-34
- CHECK	Tightening of the 12 V electrical connections	3-35
- CHECK	Tightening of the 48 V electrical connections	3-35
- CLEAN	Variable control radiators and fans	3-36
- BLEED	48 V battery cases	3-36
- RESET	Maintenance warning	3-36

➡ ② 500H - PERIODIC MAINTENANCE - EVERY 500 HOURS OF SERVICE OR 1 YEAR

ALSO PERFORM THE DAILY SERVICE AND THE PERIODIC SERVICE AT 250 HOURS OF SERVICE.

- CHECK	Tilt sensor	3-37
- CHECK	Tightening of the platform fixing screws	3-37
- CHECK	Tightening of the platform rotation cylinder fixing screws	3-38
- CHECK	Telescopic arm setting	3-38
- CHECK	Tightening of the fixing screws for the crown gear	3-39
- CHECK	Tightening of the fixing screws on the turntable rotation motor	3-39
- CHECK	Counterweight fixing screw tightening	3-40
- CHECK	Hydraulic hoses	3-40
- REPLACE	Turntable rotation motor oil	3-41
- RESET	Maintenance warning	3-41

➡ ③ 1000H - PERIODIC SERVICE - EVERY 1,000 HOURS OF SERVICE OR 2 YEARS

ALSO PERFORM THE DAILY SERVICE AND THE PERIODIC SERVICES AT 250 HOURS AND 500 HOURS OF SERVICE.

- REPLACE	Reduction gearbox oil	3-42
- REPLACE	Front and rear axle differential oil	3-42
- REPLACE	Front and rear wheel reduction gear oil	3-43
- CHECK	Electric pump motor silent blocks *	3-43
- CHECK	Crown gear clearance *	3-43
- CHECK	Speed of hydraulic movements *	3-43
- CHECK	Condition of cylinders *	3-43
- CHECK	Condition of control electric wiring *	3-43
- RESET	Maintenance warning	3-43

** Consult your dealer.*

➡ ④ 1500H - PERIODIC SERVICE - EVERY 1,500 HOURS OF SERVICE OR 3 YEARS

ALSO PERFORM THE DAILY SERVICE AND THE PERIODIC SERVICES AT 250 HOURS, 500 HOURS AND 1,000 HOURS OF SERVICE.

- REPLACE	Hydraulic oil	3-44
- CLEAN	Filling filter and suction strainer	3-44
- REPLACE	Hydraulic pressure filter element	3-44
- RESET	Maintenance warning	3-45

➡ ⑤ 2000H - PERIODIC SERVICE - EVERY 2,000 HOURS OF SERVICE OR 4 YEARS

ALSO PERFORM THE DAILY SERVICE AND THE PERIODIC SERVICES AT 250 HOURS, 500 HOURS AND 1,000 HOURS OF SERVICE.

- CHECK	Hydraulic circuit pressures *	3-46
- RESET	Maintenance warning	3-46

*** Consult your dealer.**

➡ OPTIONAL PERIODIC MAINTENANCE

- CHECK	Hydraulic oil	3-47
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This maintenance must be carried out 2 years after commissioning of the machine and 2 years after each hydraulic oil replacement:

- If the temperature range is wide. Example: regular movement from a glacial environment to a temperate environment.
- If the machine has not completed 500 hours of service in 2 years.

It must also be carried out when the machine is commissioned after it has not been used for a long time.

Note:  1 - OPERATING AND SAFETY INSTRUCTIONS: IF THE MACHINE IS NOT TO BE USED FOR A LONG TIME.

OCCASIONAL MAINTENANCE AND OCCASIONAL OPERATIONS

IMPORTANT

OCCASIONAL MAINTENANCE AND OCCASIONAL OPERATIONS MUST BE PERFORMED BY MAINTENANCE PERSONNEL OR AN APPROVED PROFESSIONAL FROM THE MANITOU NETWORK.

➡ OCCASIONAL SERVICING

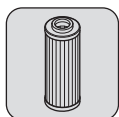
- REPLACE	Wheels	3-48
- REPLACE	Fuses/relays	3-48
- REPLACE	48 V batteries	3-51

➡ OCCASIONAL OPERATIONS

- USE	Safety strut	3-52
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FILTERS AND CARTRIDGES

➡ ② 500H - PERIODIC MAINTENANCE - EVERY 500 HOURS OF SERVICE OR 1 YEAR



HYDRAULIC PRESSURE FILTER ELEMENT

Reference: 961794

➡ OTHER FILTERS AND CARTRIDGES



HYDRAULIC OIL TANK FILLER CAP/FILTER

Reference: 259499



HYDRAULIC OIL TANK SUCTION STRAINER

Reference: 52513197

LUBRICANTS



IMPORTANT

USE THE RECOMMENDED LUBRICANTS:

- For topping up, oils may not be miscible.

- For oil changes, MANITOU oils are perfectly appropriate.

HYDRAULIC OIL ANALYSIS

If a service or maintenance contract has been organised with the dealer, a hydraulic oil analysis is requested depending on the rate of use.

RECOMMENDATION

HYDRAULICS											
DESCRIPTION	CAPACITY	RECOMMENDATION									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
HYDRAULIC OIL TANK	24 L	MANITOU PM HYDRAULIC OIL MAN 22									

TRANSMISSION											
DESCRIPTION	CAPACITY	RECOMMENDATION									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
REDUCTION GEARBOX	-	MANITOU MECHANICAL TRANSMISSION OIL SAE80W90									

REAR AXLE											
DESCRIPTION	CAPACITY	RECOMMENDATION									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
DIFFERENTIAL	-	SPECIAL MANITOU OIL FOR IMMersed BRAKES									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
WHEEL GEAR REDUCER	2 x 0.8 L	MANITOU MECHANICAL TRANSMISSION OIL SAE80W90									

FRONT AXLE											
DESCRIPTION	CAPACITY	RECOMMENDATION									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
DIFFERENTIAL	4 L	SPECIAL MANITOU OIL FOR IMMersed BRAKES									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
WHEEL GEAR REDUCER	2 x 0.8 L	MANITOU MECHANICAL TRANSMISSION OIL SAE80W90									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
STEERING PIVOT PINS		MANITOU BLACK MULTI-PURPOSE LUBRICANT									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
OSCILLATION BEARINGS		MANITOU BLACK MULTI-PURPOSE LUBRICANT									

LIFTING STRUCTURE											
DESCRIPTION	CAPACITY	RECOMMENDATION									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
GENERAL GREASING		MANITOU BLACK MULTI-PURPOSE LUBRICANT									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
GREASING THE TELESCOPIC ARM		MANITOU BLACK MULTI-PURPOSE LUBRICANT									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
CROWN GEAR BEARINGS		MANITOU BLACK MULTI-PURPOSE LUBRICANT									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
CROWN GEAR TEETH		MANITOU MULTI-PURPOSE EXTREME PRESSURE LUBRICANT									
		-40 °C	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
TURNABLE ROTATION MOTOR	0.85 L	MANITOU MECHANICAL TRANSMISSION OIL SAE80W90									

PACKAGING

OIL						
PRODUCT	PACKAGING / PART NO.					
	1 LITRE	2 LITRES	5 LITRES	20 LITRES	55 LITRES	209 LITRES
- MANITOU PM HYDRAULIC OIL MAN 22				964854		964908
- SPECIAL MANITOU OIL FOR IMMersed BRAKES			545976	582391		894257
- MANITOU MECHANICAL TRANSMISSION OIL SAE80W90		499237	720184	546330	546221	546220

GREASE						
PRODUCT	PACKAGING / PART NO.					
	400 ML	400 GR	1 KG	5 KG	20 KG	50 KG
- MANITOU MULTI-PURPOSE EXTREME PRESSURE LUBRICANT	947765					
- MANITOU BLACK MULTI-PURPOSE LUBRICANT		947766	161590			499235

CHECK

General inspection

IMPORTANT

Consult the maintenance personnel if there is doubt about the condition of the machine.

NB: the turntable covers must be opened to carry out the general inspection of the machine. They must be closed once finished.

The operator must perform a visual and physical inspection of the machine:

- Check that the instructions for use are clean and complete.
- Check the stickers and make sure they are all present, clean and legible,  2 - DESCRIPTION: STICKERS.
- Check for leaks: battery fluid, hydraulic oil, lubricants, etc.
- Check the condition of the structure: absence of impacts, damage, cracked welding, corrosion, excessive mechanical play, wear, etc.
- Check the condition of the platform: structure, floor, sliding mid-rails, gate, harness attachment points, etc.
- Check the condition of the hydraulic components: pumps, distributors, valves, cylinders, hoses, etc.
- Check the condition of the mechanical components: wheels, tyres, tie rods, crown gear, shafts, etc.
- Check the condition of the electrical components: control panels, foot switch, control handles, switches, pushbuttons, indicator lights, batteries, fuses, cables, harnesses, rotating beacon light, etc.
- Check the condition of covers, handles, locks, plugs, etc.
- Check there are no parts missing or loose: screws, nuts, pins, etc.
- Check that no parts are missing or have had unauthorised modifications.
- Check the general cleanliness of the machine: platform floor, compartments, etc.

CHECK

48 V battery charge level

IMPORTANT

If there is doubt about the charge of the 48 V batteries, refer to the maintenance personnel.

Do not use the machine if the battery charge is 10% or lower.

- Switch on the machine.
- Check the charge level of the 48 V batteries displayed on the screen on the ground. Refer to the maintenance personnel if the charge level is low.
- Make sure that the screens on the ground and in the platform are working correctly and that all the information is visible.
- Switch off the machine.

CHECK

Hydraulic oil level

IMPORTANT

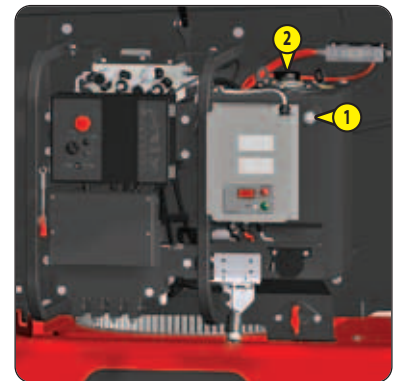
The machine must be in transport position with the jib lowered completely.

There can be a difference in level between hot and cold oil. It is recommended the level is checked again when the hydraulic oil is hot.

Clean the oil can before adding oil to the hydraulic oil tank.

Use a clean funnel to add oil to the hydraulic oil tank.

- Open the right turntable cover.
- Locate the level indicator . The level is correct when the oil reaches the red dot on the level indicator.
- If the level is low:
 - Remove the cap from the tank .
 - Add hydraulic oil until the correct level is reached,  LUBRICANTS.
 - Refit the tank cap.
- If the level is correct:
 - Ensure that the tank cap  is correctly closed.



⚠ IMPORTANT ⚠

At all times, ensure that the positive terminals of the batteries cannot come into contact with the negative terminals or with the machine's metal parts.

Do not carry out this check if the battery charge is not 100%.

Do not add distilled water if the battery charge is not 100%.

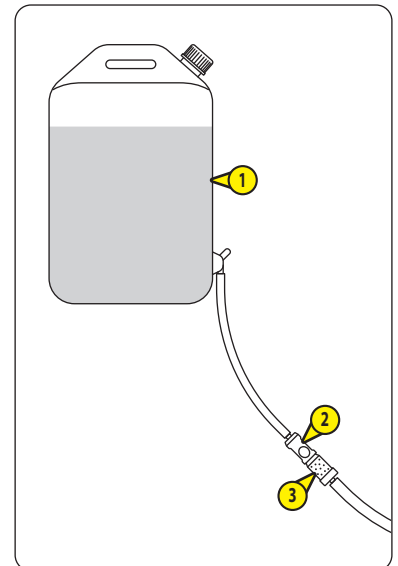
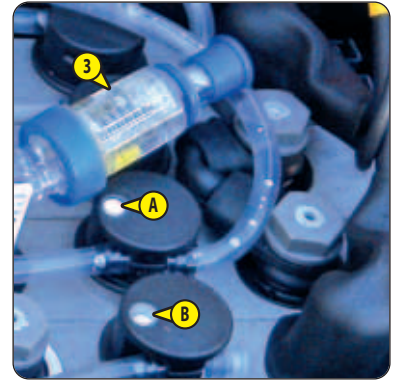
The battery contains a highly corrosive fluid. Always wear protective clothing, gloves and goggles or a face shield during maintenance. Avoid contact with body parts and clothing at all times. Rinse any exposed areas with clean water and consult a doctor.

Clean and dry the battery cell caps before closing them.

Note: the right turntable cover is open.

Note: check the fluid level of the 48 V batteries one by one.

- Open the left turntable cover.
- Check the battery fluid level. The level is correct when the fill level indicators are all at the top **A**.
- If one or more fill level indicators are at the bottom **B**:
 - Fill the tank **1** with distilled water.
 - Connect the tank connector **2** to the battery's centralised filling system connector **3**.
 - Put the tank at least 3 metres from the ground. Make sure not to damage the fill pipe.
 - Open the tap on the tank.
 - Close it when the fill level indicators are all at the top **A**.
 - Disconnect connectors **2** and **3**.
- Close the left and right turntable covers.



⚠ IMPORTANT ⚠

2 - DESCRIPTION for more information on the control panels on the ground and in the platform.

Select a test area on a firm, level surface that is free of any obstacles.

Look around and above you when manoeuvring the machine.

Pay particular attention to electric lines and any object that may be within the machine's field of operation.

Shut the machine down if a malfunction is detected.

GROUND CONTROL PANEL

Note:

- Permanent orange rotating beacon light option enabled: the orange rotating beacon light must come on when the machine is powered on.
- Permanent orange rotating beacon light option disabled: the orange rotating beacon light must come on when the machine's functions are activated.
- All movements alarm option enabled: the horn should sound intermittently when the machine's functions are activated.

SWITCHING ON AND EMERGENCY STOP

Note: the battery cut-off is in the OFF position. The key switch is in the OFF position .

Note: the machine is in the transport position. The turntable and the platform should be in the neutral position. The jib is completely lowered.

- Ensure that the emergency stop buttons on the ground level control panel and on the control panel in the platform are in the ON position.
- Turn the battery cut-off to the ON position.
- Turn the ignition switch to the ON position .

Result:

- The ground level screen should come on and the power-up cycle should be displayed.
- The fans of the variable controls in the frame and under the left turntable cover should run at high speed.
- The audible alarm should sound once.
- Secondary protection system SPS option: the flashing light SPS should flash a few times and then go out.
- Wait for the power-up cycle to finish.

Result:

- The fans of the variable controls in the frame and under the left turntable cover should stop.
- Press the emergency stop button.

Result:

- The emergency stop button should be pushed in in the OFF position.
- The ground level screen should turn off.
- Pull the emergency stop button or turn it clockwise and release it.

Result:

- The emergency stop button should be in the ON position.
- The ground level screen should come on and the power-up cycle should be displayed.
- The fans of the variable controls in the frame and under the left turntable cover should run at high speed.
- The audible alarm should sound once.
- Secondary protection system SPS option: the flashing light SPS should flash a few times and then go out.
- Wait for the power-up cycle to finish.

Result:

- The fans of the variable controls in the frame and under the left turntable cover should stop.

MACHINE FUNCTIONS

IMPORTANT

During this test, turn the turntable by a small angle to avoid injury.

Note: the machine is powered up. The machine is in transport position. The turntable and the platform should be in the neutral position. The jib is completely lowered.

- Do not touch the activation button. Try to activate the machine's functions one by one.

Result:

- It should not be possible to activate any of the functions.

- Push and hold the activation switch to the right  (ground controls position).
- Activate all the machine's functions one by one. Check that all the movements are complete up to the mechanical stops.

Result:

- It should be possible to activate all the functions.
- All the movements should work correctly and smoothly.
- All the movements should be complete up to the mechanical stops.
- Put the machine in transport position. Put the turntable in neutral position. Level the platform/jib. Lower the jib completely.
- Release the activation switch.

OVERLOAD WARNING

Note: the machine is powered up. The machine is in transport position. The turntable and the platform should be in the neutral position. The jib is completely lowered.

- Place an evenly distributed load in the platform = between 253 kg and 283 kg.

Result:

- A warning page must be displayed on the ground level screen.
- The audible alarm should sound continuously.
- Try to activate all the machine's functions one by one.

Result:

- It should not be possible to activate any of the functions.
- Remove between 23 kg and 53 kg to obtain a load of 230 kg in the platform.

Result:

- The warning page should no longer be displayed.
- The audible alarm should stop.
- Activate all the machine's functions one by one.

Result:

- It should be possible to activate all the functions.
- Put the machine in transport position. Put the turntable in neutral position. Level the platform/jib. Lower the jib completely.

CONTROL PANEL IN THE PLATFORM

Note:

- Permanent orange rotating beacon light option enabled: the orange rotating beacon light must come on when the machine is powered on.
- Permanent orange rotating beacon light option disabled: the orange rotating beacon light must come on when the machine's functions are activated and when driving/steering the machine.
- All movements alarm option enabled: the horn should sound intermittently when the machine's functions are activated and when driving/steering the machine.
- Driving/steering option enabled: the horn should sound intermittently when driving/steering the machine.

OVERLOAD WARNING

Note: the machine is powered up. The machine is in transport position. The turntable and the platform should be in the neutral position. The jib is completely lowered.

Note: a load of 230 kg is in the platform.

- Climb into the platform.

Result:

- The overload warning light should flash.
- A warning page should be displayed on the screen in the platform.
- The audible alarm should sound continuously.

- Try to activate all the machine's functions one by one.

Result:

- It should not be possible to activate any of the functions.

- Get out of the platform.

Result:

- The overload warning light should turn off.
- The warning page should no longer be displayed.
- The audible alarm should stop.

- Remove the whole load from the platform.

EMERGENCY STOP

Note: the machine is powered up. The machine is in transport position. The turntable and the platform should be in the neutral position. The jib is completely lowered.

- Press the emergency stop button.

Result:

- The emergency stop button should be pushed in in the OFF position.
- The screen in the platform should turn off.

- Pull the emergency stop button or turn it clockwise and release it.

Result:

- The emergency stop button should be in the ON position.
- The screen in the platform should come on and the power-up cycle should be displayed.
- The fans of the variable controls in the frame and under the left turntable cover should run at high speed.
- The audible alarm should sound once
- Secondary protection system SPS option: the flashing light SPS should flash a few times and then go out.

- Wait for the power-up cycle to finish.

Result:

- The fans of the variable controls in the frame and under the left turntable cover should stop.

- Raise the jib, at the same time pressing the emergency stop button.

- Result:

- The emergency stop button should be pushed in in the OFF position.
- The jib should stop.

- Pull the emergency stop button or turn it clockwise and release it to put it in the ON position.

- Wait for the power-up cycle to finish.

- Fully lower the jib.

HORN

Note: the machine is powered up. The machine is in transport position. The turntable and the platform should be in the neutral position. The jib is completely lowered.

- Press the horn pushbutton and release it.

Result:

- The horn should sound.

PLATFORM/JIB TILT

⚠ IMPORTANT ⚠

During this test, tilt the platform up and down slightly to avoid injury.

Note: the machine is powered up. The machine is in transport position. The turntable and the platform should be in the neutral position. The jib is completely lowered.

Note: the pictogram of the machine in transport position  must be displayed on the screen in the platform.

- Do not touch the foot switch. Try to tilt the platform/jib up and down.

Result:

- It should not be possible to activate any of the functions.
- Press and hold down the foot switch.
- Raise the jib slightly.
- Tilt the platform/jib up and down slightly.

Result:

- It should be possible to activate the functions.
- Extend the telescopic arm for 3 seconds.

Result:

- It should be possible to activate the function.

- The pictogram of the machine in working position  must be displayed on the screen in the platform.

- Try to tilt the platform/jib up and down.

Result:

- It should not be possible to activate the functions.
- Fully retract the telescopic arm. Level the platform/jib. Lower the jib completely.

Result:

- The pictogram of the machine in transport position  must be displayed on the screen in the platform.

- Release the foot switch.

MACHINE FUNCTIONS (EXCLUDING PLATFORM/JIB TILT)

Note: the machine is powered up. The machine is in transport position. The turntable and the platform should be in the neutral position. The jib is completely lowered.

Note: do not drive or steer the machine during this test.

- Do not touch the foot switch. Try to activate all the machine's functions one by one.

Result:

- It should not be possible to activate any of the functions.
- Press and hold down the foot switch.
- Activate all the machine's functions one by one. Check that all the movements are complete up to the mechanical stops.

Result:

- It should be possible to activate all the functions.
- All the movements should work correctly and smoothly.
- All the movements should be complete up to the mechanical stops.
- Put the machine in transport position. Put the turntable in neutral position. Lower the jib completely.
- Release the foot switch.

DRIVING/STEERING/BRAKING FUNCTIONS AND DRIVING SPEED SELECTION

Note: the machine is powered up. The machine is in transport position. The turntable and the platform should be in the neutral position. The jib is completely lowered.

- Do not touch the foot switch or the driving/steering control handle trigger. Try to drive and steer the machine.
- Do not touch the foot switch. Press and hold down the driving/steering control handle trigger. Try to drive and steer the machine.
- Press and hold down the foot switch. Do not touch the driving/steering control handle trigger. Try to drive and steer the machine.

Result:

- It should not be possible to activate the functions.

- Select hare speed .
- Raise the jib slightly for better visibility.
- Press and hold down the foot switch. Press and hold down the control/steering handle trigger.
- Drive the machine forwards and brake. Assess and remember the machine's braking distance.
- Drive the machine forwards, test the steering and brake.

Result:

- It should be possible to activate the driving/steering functions.
- Driving and steering should function properly and smoothly.
- Brakes should function properly.

- The driving speed must be hare speed forward .

- Drive the machine backwards for a short distance and brake.

Result:

- The driving speed must be hard speed in reverse .

- Select tortoise speed .
- Drive the machine forwards and brake. Assess and remember the machine's braking distance.
- Drive the machine forwards, test the steering and brake.
- Drive the machine backwards for a short distance and brake.

Result:

- It should be possible to activate the driving/steering functions.
- Driving and steering should function properly and smoothly.
- Brakes should function properly.
- The driving speed must be tortoise speed .

- Align the front wheels.

Result:

- The pictogram of the front wheels should be green  on the screen in the platform.

- Release the foot switch.

WORKING POSITION SPEED

Note: the machine is powered up. The machine is in transport position. The turntable and the platform are in the neutral position. The jib is slightly raised.

Note: tortoise speed  is selected. The front wheels are aligned.

Note: the pictogram of the machine in transport position  must be displayed on the screen in the platform.

- Drive the platform forwards for a short distance and brake. Assess and remember the speed of the machine.
- Raise the main arm for 3 seconds.
- Drive the machine forwards for a short distance and brake.

Result:

- The pictogram of the machine in working position  must be displayed on the screen in the platform.
- The driving speed must be working speed.
- Fully lower the main arm.
- Drive the machine forwards for a short distance and brake.

Result:

- The pictogram of the machine in transport position  must be displayed on the screen in the platform.
- The driving speed must be tortoise speed .
- Raise the secondary arm for 3 seconds.
- Drive the machine forwards for a short distance and brake.

Result:

- The pictogram of the machine in working position  must be displayed on the screen in the platform.
- The driving speed must be working speed.
- Fully lower the secondary arm.
- Drive the machine forwards for a short distance and brake.

Result:

- The pictogram of the machine in transport position  must be displayed on the screen in the platform.
- The driving speed must be tortoise speed .
- Extend the telescopic arm for 3 seconds.
- Drive the machine forwards for a short distance and brake.

Result:

- The pictogram of the machine in working position  must be displayed on the screen in the platform.
- The driving speed must be working speed.
- Fully retract the telescopic arm.
- Drive the machine forwards for a short distance and brake.

Result:

- The pictogram of the machine in transport position  must be displayed on the screen in the platform.
- The driving speed must be tortoise speed .

DIFFERENTIAL LOCK

Note: the machine is powered up. The machine is in transport position. The turntable and the platform are in the neutral position. The jib is slightly raised.

Note: tortoise speed  is selected. The front wheels are aligned.

- Drive the machine forwards and steer fully to the left or right.
- Press and hold the differential lock pushbutton.

Result:

- The rear right wheel or the rear left wheel should slip.
- Align the front wheels.
- Release the differential lock pushbutton and brake the machine.
- Drive the machine forwards and steer fully to the left or right.

Result:

- The wheel should no longer slip.
- Align the front wheels.
- Brake the machine.

TURNTABLE SLEW WARNING

Note: the machine is powered up. The machine is in transport position. The turntable and the platform are in the neutral position. The jib is slightly raised.

Note: tortoise speed  is selected. The front wheels are aligned.

- Turn the turntable to the left so that the angle of the turntable is greater than 90° relative to the neutral position.

Result:

- A warning page should be displayed on the screen in the platform.
- Try to drive and steer the machine.

Result:

- It should not be possible to activate the functions.
- The audible alarm should sound twice (when trying to drive).
- Press and release the turntable slewing button.

Result:

- The warning page and the work page should be displayed alternately.
- Drive the machine forwards/backwards and steer left/right. Match up the colours of the black and white arrows on the frame and on the control panel in the platform to drive/steer the machine in the desired direction.
- Brake the machine.

Result:

- It should be possible to activate the driving/steering functions.
- The colours of the black and white arrows should make it possible to drive and steer the machine in the desired direction.
- Turn the turntable to the right so that the angle of the turntable is less than 90° relative to the neutral position.

Result:

- The warning page should no longer be displayed.
- Repeat the test from the start by turning the turntable to the right.
- Place the turntable in the neutral position.
- Align the front wheels.

OPERATION ON A SLOPE AND TILT WARNING

Note: the machine is powered up. The machine is in transport position. The turntable and the platform are in the neutral position. The jib is slightly raised.

Note: tortoise speed  is selected. The front wheels are aligned.

Note: the pictogram of the machine in transport position  must be displayed on the screen in the platform.

TEST No. 1

- Select a slope between 10.5% (6°) and 35% (19°).
- Raise the jib to the horizontal position.
- Drive the machine forwards slowly onto the slope, facing it, with the platform at the bottom of the slope.

Result:

- The tilt/oscillation lock light should come on.

- The tilt pictogram and the tilt value should be in orange  on the screen in the platform.

- The audible alarm should sound intermittently.

- Brake the machine on the slope.

Result:

- Brakes should function properly.
- The machine must be immobilised on the slope for at least 1 minute.

- Try to raise the main arm and the telescopic arm and extend the telescopic arm.

Result:

- It should not be possible to activate the functions.

- Drive the machine backwards off the slope onto a level surface.

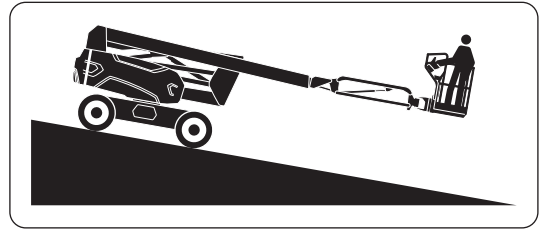
Result:

- The tilt/oscillation lock light should go out.

- The tilt pictogram should be in grey and the tilt value should be in white  on the screen in the platform.
- The audible alarm should stop.

- Brake the machine.

TEST No. 2: see next page.



TEST No. 2

- Extend the telescopic arm for 3 seconds.

Result:

- The pictogram of the machine in working position  must be displayed on the screen in the platform.
- Drive the machine forwards slowly onto the slope, facing it, with the platform at the bottom of the slope.

Result:

- The machine should brake automatically.
- The tilt/oscillation lock light should come on.
- The tilt pictogram and the tilt value should be in red  on the screen in the platform.
- The audible alarm should sound intermittently.
- Try to raise the main arm and the secondary arm, extend the telescopic arm, tilt the platform/jib upwards/downwards and drive/steer the machine.

Result:

- It should not be possible to activate the functions.
- Fully retract the telescopic arm.

Result:

- It should be possible to activate the function.
- The pictogram of the machine in transport position  must be displayed on the screen in the platform.
- The tilt pictogram and the tilt value should be in orange  on the screen in the platform.
- Drive the machine backwards off the slope onto a level surface.

Result:

- The tilt/oscillation lock light should go out.
- The tilt pictogram should be in grey and the tilt value should be in white  on the screen in the platform.
- The audible alarm should stop.
- Brake the machine.
- Fully lower the jib.
- Get out of the platform.
- Switch off the machine.

SECONDARY PROTECTION SYSTEM SPS (OPTION)

- Switch on the machine.

Result:

- The audible alarm should sound once.
- The flashing light SPS should flash several times and go out.
- Climb into the platform.
- Check the condition of the safety cable SPS. If there is doubt about its condition, have it replaced by an approved professional from the Manitou network.
- Raise the jib slightly.
- Extend the telescopic arm for 3 seconds.
- Turn the platform to the right or left. At the same time, push the safety cable SPS forwards and release it.

Result:

- The platform rotation should stop.
- The flashing light SPS should flash.
- A warning page should be displayed on the screen in the platform.
- The horn should sound intermittently.
- Try to activate all the machine's functions one by one.

Result:

- It should not be possible to activate any of the functions.
- Press and release the reset pushbutton SPS.

Result:

- The flashing light SPS should go out.
- The warning page should no longer be displayed.
- The horn should stop.
- Fully retract the telescopic arm.

Result:

- It should be possible to activate the function.
- Extend the telescopic arm for 3 seconds.
- Turn the platform to the right or left. At the same time, push and hold the safety cable SPS forwards.

Result:

- The platform rotation should stop.
- The flashing light SPS should flash.
- A warning page should be displayed on the screen in the platform.
- The horn should sound intermittently.
- Press and release the reset pushbutton SPS without releasing the safety cable SPS.
- Fully retract the telescopic arm.

Result:

- It should be possible to activate the function.
- Release the safety cable SPS.

Result:

- The flashing light SPS should go out.
- The warning page should no longer be displayed.
- The horn should stop.
- Fully lower the jib.
- Get out of the platform.
- Switch off the machine.

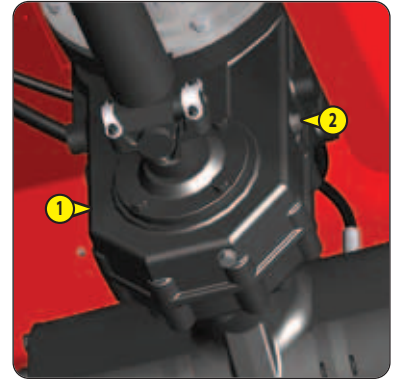
➤ MONTHLY MAINTENANCE OR EVERY 50 HOURS OF SERVICE

ALSO PERFORM THE DAILY MAINTENANCE.

CHECK

Reduction gearbox seal

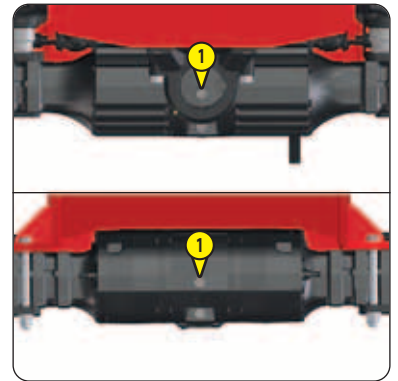
- Locate the reduction gearbox ① on the rear axle.
- Check no oil is leaking from the reduction gearbox and plugs.
- If a leak is detected:
 - Clean the outside of the reduction gearbox with a clean cloth.
 - Remove the filler plug ②.
 - Check that the oil reaches the filling hole.
 - Add oil if necessary, LUBRICANTS.
 - Refit the filler cap.



CHECK

Front and rear axle differential seals

- Check no oil is leaking from the differentials and plugs.
- If a leak is detected:
 - Clean the outside of the axle differential with a clean cloth.
 - Remove the filler plug ①.
 - Check that the oil reaches the filling hole.
 - Add oil if necessary, LUBRICANTS.
 - Refit the filler cap.



CHECK

Front and rear wheel reducer seals

- Note: check the gear reducers one by one.
- Check no oil is leaking from the gear reducers and plugs.
 - If a leak is detected:
 - Turn the wheel to put the drain/filler plug ① in the horizontal position.
 - Clean the outside of the gear reducer with a clean cloth.
 - Remove the drain/filler plug.
 - Check that the oil reaches the filling hole.
 - Add oil if necessary, LUBRICANTS.
 - Refit the drain/filler plug:

Tightening torque = 42 N.m ± 7 N.m



⚠ IMPORTANT ⚠

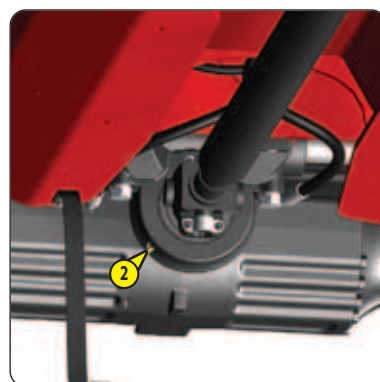
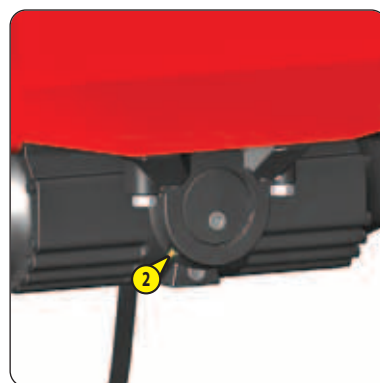
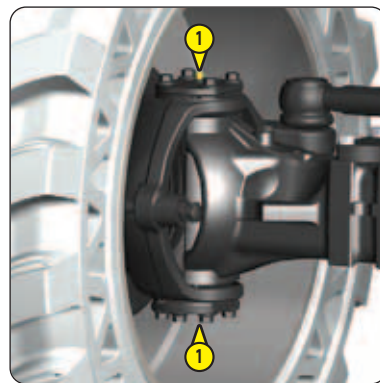
Lubricate the axle more often when the machine is operating in a dusty environment.

STEERING PIVOT PINS

- Remove the caps from the lubrication connectors ①, on the left and right-hand sides.
- Inject the lubricant into the lubrication connectors, ⚡ LUBRICANTS.
- Refit the caps of the lubrication connectors.

OSCILLATION BEARINGS

- Remove the caps of the lubrication connectors ②.
- Inject the lubricant into the lubrication connectors, ⚡ LUBRICANTS.
- Refit the caps of the lubrication connectors.



⚠ IMPORTANT ⚠

Connect the plug to a 230 V/50 Hz power source that delivers 16 A.

Only connect electrical appliances that operate at 230 V/50 Hz, 16 A maximum.

Do not connect extension leads, power supply bars or plugs with multiple sockets to the electric power socket.

- Connect the plug ① to a power source.
- Plug an electrical appliance into the electric power socket ② and turn the power on.

Result:

- The electrical appliance should operate.
- Open the electric unit's cover ③A.
- Press and release the test pushbutton ③B.

Result:

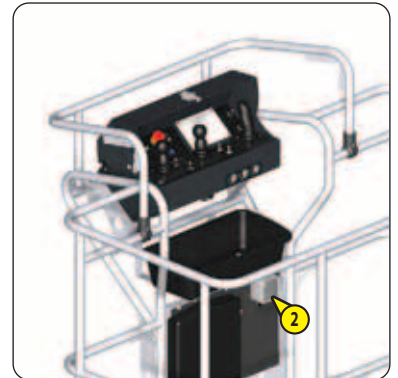
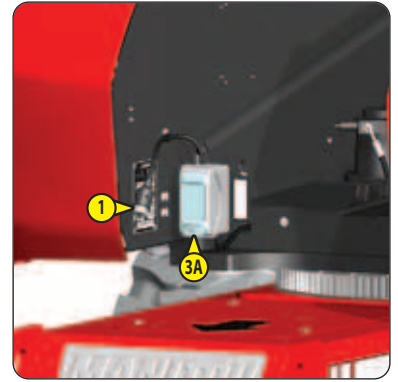
- The switch ③C must move from the ON position to the OFF position, the indicators ③D and ③E should be green.
- The electrical appliance should not operate.
- Turn off the electrical appliance.
- Push the switch ③C to the ON position.

Result:

- The switch must remain in the ON position, the indicators should be red.
- Turn on the electrical appliance.

Result:

- The electrical appliance should operate.
- Disconnect the electrical appliance.
- Disconnect the electrical plug.



➡ ① 250H - PERIODIC MAINTENANCE - EVERY 250 HOURS OF SERVICE OR 6 MONTHS

ALSO PERFORM THE DAILY MAINTENANCE.

CHECK

Reduction gearbox seal

- ◀ 50H: MONTHLY MAINTENANCE OR EVERY 50 HOURS OF SERVICE

CHECK

Front and rear axle differential seals

- ◀ 50H: MONTHLY MAINTENANCE OR EVERY 50 HOURS OF SERVICE

CHECK

Front and rear wheel reducer seals

- ◀ 50H: MONTHLY MAINTENANCE OR EVERY 50 HOURS OF SERVICE

CHECK

230 V electric power socket in the platform (OPTION)

- ◀ 50H: MONTHLY MAINTENANCE OR EVERY 50 HOURS OF SERVICE

CHECK

Wheel nut tightening

⚠ IMPORTANT ⚠

Failure to follow this instruction may result in the machine tipping over.

- Check all the wheel nut tightening torques:
 - $360 \text{ N.m} \pm 36 \text{ N.m}$

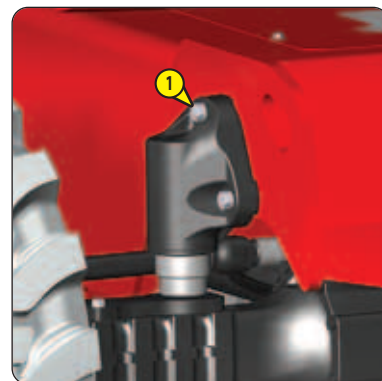
CHECK

Tightening of the fixing screws for the oscillating cylinders

⚠ IMPORTANT ⚠

Failure to follow this instruction may result in the machine tipping over.

- Check the tightening torques for all the fixing screws ①, left and right-hand sides:
 - $281 \text{ N.m} \pm 55 \text{ N.m}$



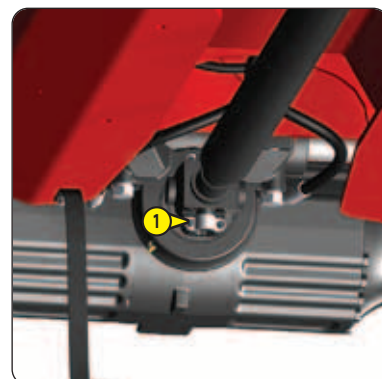
CHECK

Tightening of the transmission shaft fixing screws

⚠ IMPORTANT ⚠

Failure to follow this instruction may result in the machine losing control.

- Check the tightening torque of all the fixing screws ①, at the front and rear:
 - $38 \text{ N.m} \pm 3.5 \text{ N.m}$



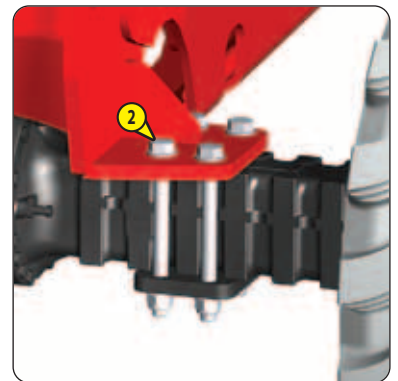
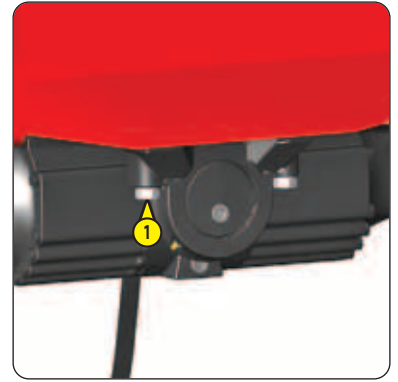
CHECK

Tightening of the fixing screws for the axles

⚠ IMPORTANT ⚠

Failure to follow this instruction may result in the machine tipping over.

- Check all the fixing screw tightening torques:
 - ① (Front axle oscillating bearings) = $375 \text{ N.m} \pm 74 \text{ N.m}$
 - ② (Rear axle, left and right sides) = $341 \text{ N.m} \pm 68 \text{ N.m}$



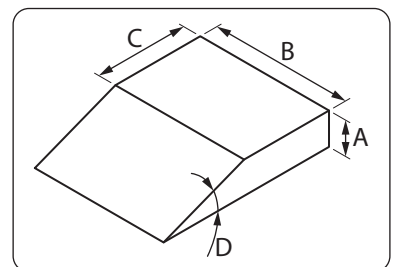
CHECK

Locking of the front axle oscillating cylinders

⚠ IMPORTANT ⚠

Failure to follow this instruction may result in the machine tipping over.

- Place a sufficiently solid ramp in front of the right front wheel:
 - A = 7.5 cm minimum, 9 cm maximum.
 - B = 60 cm minimum.
 - C = 75 cm minimum, 100 cm maximum.
 - D = 10° minimum, 25° maximum.
- Switch on the machine.
- Climb into the platform.
- Select tortoise speed .
- Raise the jib slightly.



Note: the pictogram of the machine in transport position  must be displayed on the screen in the platform.

- Drive the machine slowly forwards until the right front wheel is at the top of the ramp.
- Brake the machine.
- Turn the turntable 90° to the left.
- Extend the telescopic arm for 3 seconds.

Continuation: see next page.

Result:

- The pictogram of the machine in working position  must be displayed on the screen in the platform.
- Drive the machine slowly backwards until the wheel is off the slope.
- Brake the machine.
- Ask someone on the ground to check the right front wheel and the oscillating cylinders.

Result:

- The right front wheel should be in the upper position and not in contact with the ground.
- The right oscillating cylinder should be retracted and the left one extended.
- Ask the person on the ground to move away.
- Fully retract the telescopic arm.

Result:

- The pictogram of the machine in transport position  must be displayed on the screen in the platform.
- Ask the person on the ground to check the front wheels.

Result:

- The two front wheels must be in contact with the ground.
- Place the turntable in the neutral position.
- Fully lower the jib.
- Get out of the platform.
- Place the same ramp in front of the left front wheel.
- Climb into the platform.
- Raise the jib slightly.
- Drive the machine slowly forwards until the left front wheel is at the top of the ramp.
- Brake the machine.
- Turn the turntable 90° to the right.
- Extend the telescopic arm for 3 seconds.

Result:

- The pictogram of the machine in working position  must be displayed on the screen in the platform.
- Drive the machine slowly backwards until the wheel is off the slope.
- Brake the machine.
- Ask the person on the ground to check the left front wheel and the oscillating cylinders.

Result:

- The left front wheel should be in the upper position and not in contact with the ground.
- The left oscillating cylinder should be retracted and the right one extended.
- Ask the person on the ground to move away.
- Fully retract the telescopic arm.

Result:

- The pictogram of the machine in transport position  must be displayed on the screen in the platform.
- Ask the person on the ground to check the front wheels.

Result:

- The two front wheels must be in contact with the ground.
- Place the turntable in the neutral position.
- Fully lower the jib.
- Get out of the platform.

⚠ IMPORTANT ⚠

Failure to follow this instruction may result in the machine tipping over.

Refer to the machine repair manual if the overload system is not correctly calibrated.

Note: the machine is powered up. The machine is in transport position. The turntable and the platform should be in the neutral position. The jib is completely lowered.

- Place an evenly distributed load in the platform = 253 kg.

Result:

- A warning page must be displayed on the ground level screen.
- The audible alarm should sound continuously.
- Try to activate all the machine's functions one by one from the ground control panel.

Result:

- It should not be possible to activate any of the functions.
- Remove 23 kg to obtain a load of 230 kg in the platform:

Result:

- The warning page should no longer be displayed.
- The audible alarm should stop.
- Activate all the machine's functions one by one.

Result:

- It should be possible to activate all the functions.
- Put the machine in transport position. Put the turntable in neutral position. Level the platform/jib. Lower the jib completely.
- Climb into the platform.

Result:

- The overload warning light should flash.
- A warning page should be displayed on the screen in the platform.
- The audible alarm should sound continuously.
- Try to activate all the machine's functions one by one from the control panel in the platform.

Result:

- It should not be possible to activate any of the functions.
- Get out of the platform.

Result:

- The overload warning light should turn off.
- The warning page should no longer be displayed.
- The audible alarm should stop.
- Remove the whole load from the platform.
- Switch off the machine.

⚠ IMPORTANT ⚠

Failure to follow this instruction may result in the machine losing control.

PLACING IN FREEWHEEL MODE

Note: the machine is powered down. The machine is in transport position. The turntable and the platform should be in the neutral position. The jib is completely lowered.

- Carry out the full procedure described in 2- DESCRIPTION: TRANSPORT AND LIFTING: FREEWHEEL FOR TOWING/WINCHING.

BRAKING DISTANCE ON A LEVEL SURFACE

Note: the machine is powered down. The machine is in transport position. The turntable and the platform should be in the neutral position. The jib is completely lowered.

- Select a level surface for carrying out the following test.
- Switch on the machine.
- Place an evenly distributed load in the platform = 230 kg less your own weight.
- Climb into the platform.
- Select hare speed .
- Raise the jib slightly for better visibility.

Note: the pictogram of the machine in transport position  must be displayed on the screen in the platform.

Drive the machine forwards until the top speed is reached.

- Release the control handle to brake the machine.

Result:

- The braking distance should be: 1,400 mm $\pm$ 300 mm.
- Extend the telescopic arm for 3 seconds.

Result:

- The pictogram of the machine in working position  must be displayed on the screen in the platform.
- Drive the machine forwards until the top speed is reached:

Note: the driving speed must be working speed.

- Release the control handle to brake the machine.

Result:

- The braking distance should be: 200 mm $\pm$ 50 mm.
- Fully retract the telescopic arm and lower the jib completely.

Result:

- The pictogram of the machine in transport position  must be displayed on the screen in the platform.

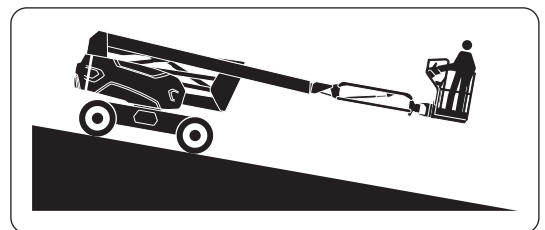
BRAKING ON A SLOPE

Note: the machine is powered up. The machine is in transport position. The turntable and the platform are in the neutral position. The jib is slightly raised. The load from the previous test is in the platform.

- Select a 25% (14°) slope for carrying out the following test.
- Raise the jib to the horizontal position.
- Drive the platform forwards slowly on the slope, facing it, with the platform at the bottom of the slope.
- Release the control handle to brake the machine on the slope.

Result:

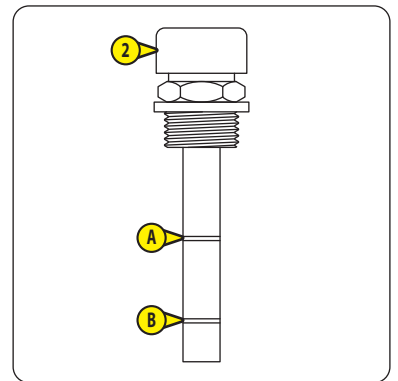
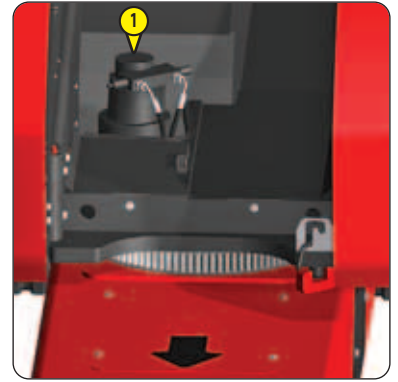
- The machine must be immobilised on the slope for at least 1 minute.
- Drive the machine off the slope.
- Fully lower the jib.
- Get out of the platform.
- Remove the whole load from the platform.
- Switch off the machine.



CHECK

Turntable rotation motor oil level

- Put the safety strut in place, ⚠ OCCASIONAL OPERATIONS.
- Check no oil is leaking from the turntable rotation motor ①.
- Remove the filler plug ②.
- Clean the gauge on the filler cap with a clean cloth and put it back in place.
- Remove the filler cap. The level is correct when the oil is between the 2 marks A and B.
- If the level is low, add oil until the correct level is reached, ⚠ LUBRICANTS.
- Refit the filler cap.
- Remove the safety strut, ⚠ OCCASIONAL OPERATIONS.



CHECK

Emergency controls

⚠ IMPORTANT ⚠

Use of the machine if there is a malfunction is prohibited.

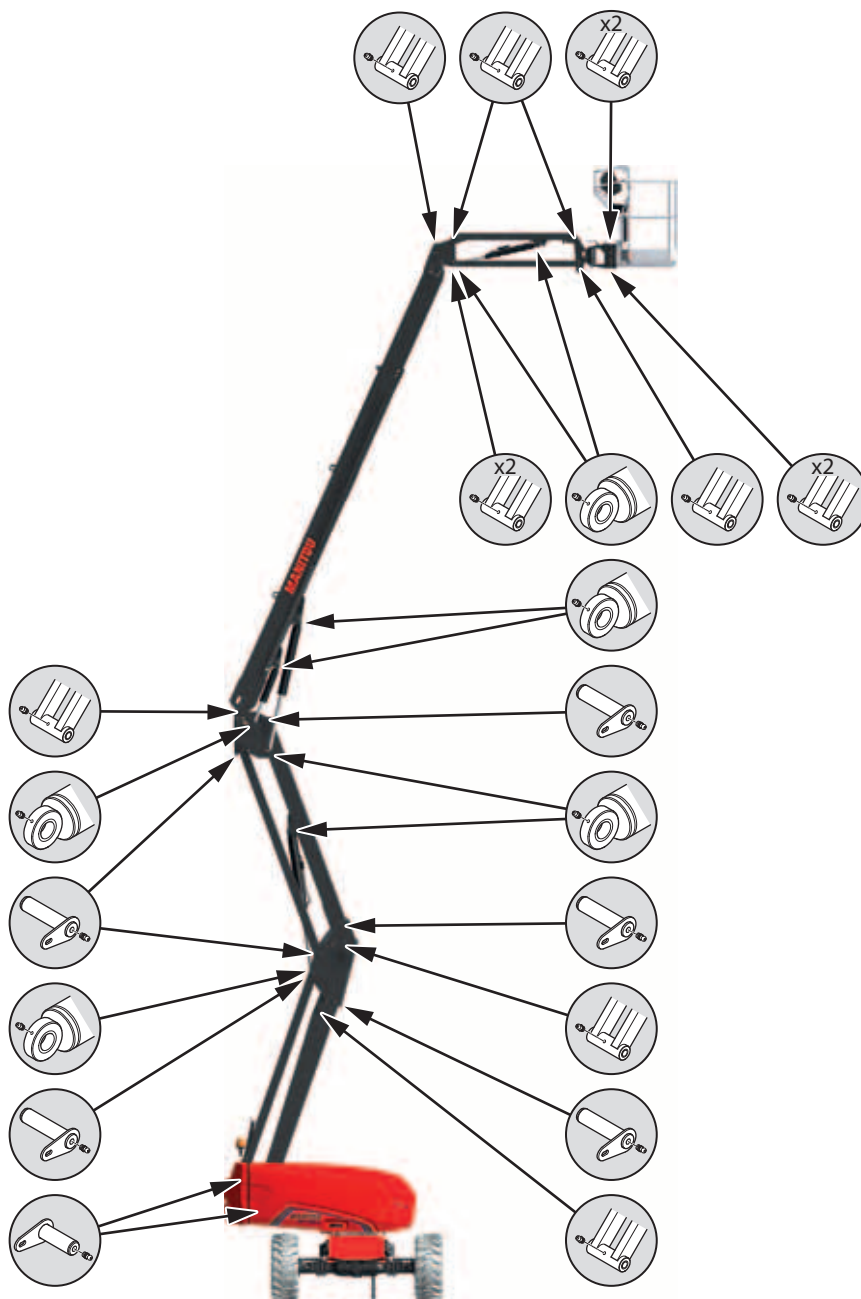
- Check operation of the emergency controls: carry out the complete procedures described in 2 - DESCRIPTION: EMERGENCY CONTROLS.

⚠ IMPORTANT ⚠

Always secure the raised arms with a suitable lifting device.

- Switch on the machine.
- Perform the appropriate movements of the main/secondary arms, the jib and the platform/jib tilt to access the various lubricators. Secure the raised arms using a suitable lifting device.
- Remove the caps of the lubrication connectors.
- Inject the lubricant into each lubrication connector,  LUBRICANTS.
- Refit the caps of the lubrication connectors.
- Lower the main arm completely. Lower the secondary arm completely. Level the platform/jib. Lower the jib completely.

KEY
SHAFT  
HUB 
CYLINDER RING 



⚠ IMPORTANT ⚠

Lubricate the telescopic arm more often when the machine is operating in a dusty environment.

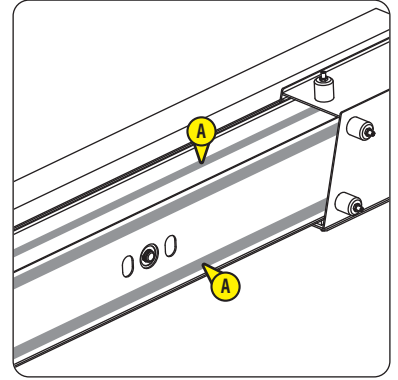
Note: the machine is switched on.

- Raise the jib slightly.
- Fully retract the telescopic arm.
- Check the sliding surfaces **A** of the pads:
 - Surfaces must be smooth and free from corrosion.
- Lubricate the telescopic arm if necessary,  LUBRICANTS.

Note: extend and retract the telescopic arm several times to spread the lubricant.

Remove the excess with a clean cloth.

- Fully retract the telescopic arm.
- Fully lower the jib.
- Switch off the machine.

**LUBRICATE****Crown gear**

- Remove the right frame cover.
- Remove the caps of the 2 lubrication connectors **1** for the crown gear.
- Inject the lubricant into the lubrication connectors,  LUBRICANTS.
- Switch on the machine.
- Turn the turntable 90° to the left or the right and inject lubricant again.
- Refit the caps of the lubrication connectors.
- Refit the right frame cover.
- Lubricate the teeth of the crown gear **2**,  LUBRICANTS.
- Turn the turntable a full turn to spread the lubricant.
- Place the turntable in the neutral position.
- Switch off the machine.



⚠ IMPORTANT ⚠

This maintenance operation may need electrical accreditation: comply with local, government and national regulations in force.

At all times, ensure that the positive terminals cannot come into contact with the negative terminals or with the machine's metal parts.

After each job, make sure that electrical component protection is put back in place (caps, covers, terminal covers, etc.).

- Put the safety strut in place, ⚠ OCCASIONAL OPERATIONS.
- Lock the battery cut-off in the OFF position using a padlock.
- Open the left and right turntable covers.
- Check the condition of the 12 V power cables:
 - Between the 12 V battery and the battery cut-off.
 - Between the battery cut-off and the fuse holder.
 - Between the fuse holder and the backup pump.
- Check the condition of the ground braid between the 12 V battery and the turntable.
- Check the tightening of the 12 V electrical connections:
 - On the 12 V battery.
 - On the battery cut-off.
 - On the fuse holder.
 - On the backup pump.
 - On the turntable.

⚠ IMPORTANT ⚠

This maintenance operation may need electrical accreditation: comply with local, government and national regulations in force.

At all times, ensure that the positive terminals cannot come into contact with the negative terminals or with the machine's metal parts.

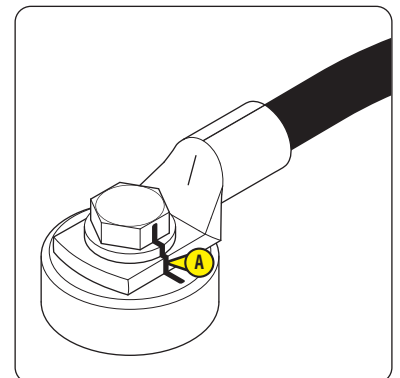
After each job, make sure that electrical component protection is put back in place (caps, covers, terminal covers, etc.).

Note: the safety strut is in place. The battery cut-off is locked in the OFF position using a padlock. The left and right turntable covers are open.

- Remove the left frame cover.
- Remove the rear chassis cover.
- Check the condition of the 48 V power cables:
 - Between the left 24 V battery and the right 24 V battery.
 - Between the right 24 V battery and the fuse holder.
 - Between the fuse holder and the battery cut-off.
 - Between the battery cut-off and the power relay of the electric pump variable control.
 - Between the power relay of the electric pump variable control and the electric pump variable control.
 - Between the electric pump variable control and the electric pump.
 - Between the power relay of the electric pump variable control and the wheel motor variable control.
 - Between the wheel motor variable control and the wheel motor.
 - Between the left 24 V battery and the connection terminal block.
 - Between the connection terminal block and the battery cut-off.
 - Between the connection terminal block and the electric pump variable control.
 - Between the connection terminal block and the wheel motor variable control.
- Check the tightening of the 48 V electrical connections:

Note: add marking **A** to the electrical connections after tightening.

- On the two 24 V batteries.
- On the fuse holder.
- On the battery cut-off.
- On the 2 power relays.
- On the 2 variable controls.
- On the electric pump.
- On the wheel motor.
- On the connection terminal block.
- Refit the right frame cover.
- Unlock the battery cut-off by removing the padlock.
- Remove the safety strut, ⚠ OCCASIONAL OPERATIONS.



Note: the left and right turntable covers are open. The left frame cover has been removed.

- Locate the variable control under the left turntable cover and the variable control in the frame.
- Clean the variable control radiators with dry compressed air:
 - Maximum pressure = 3 bars. Minimum distance = 30 mm.
- Clean the air inlet of the variable control fans with a clean, dry cloth:
- Switch on the machine.
- Check that the variable control fans are working correctly:
 - The fans should operate at high speed then stop.
- Switch on the machine.
- Refit the left frame cover.
- Close the left and right turntable covers.

BLEED

48 V battery cases

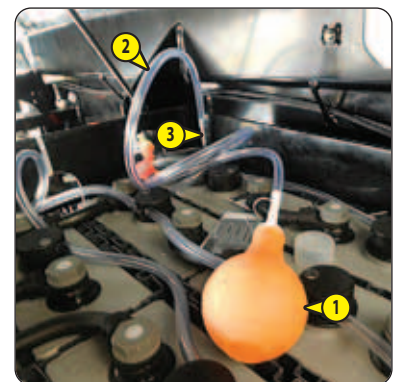
⚠ IMPORTANT ⚠

Bleed the 48 V battery cases more often when the machine is stored outdoors.

At all times, ensure that the positive terminals of the batteries cannot come into contact with the negative terminals or with the machine's metal parts.

Note: bleed the 48 V battery cases one by one.

- Open the left and right turntable covers.
- Locate the aspirator bulb ① and the flexible pipe ② on top of one of the batteries.
- Locate the rigid pipe ③ in the battery.
- Connect the flexible pipe to the aspirator bulb and the rigid pipe.
- Bleed the water contained in the battery case using the aspirator bulb.
- Remove the aspirator bulb and empty it.
- Remove the flexible pipe.
- Put the aspirator bulb and the flexible pipe back in place.
- Close the left and right turntable covers.



RESET

Maintenance warning

- Switch on the machine.
- Go into the maintenance menu on the ground level screen.
- Reset the maintenance warning.
- Go back to the work page.
- Switch off the machine.

🔄 500H - PERIODIC MAINTENANCE - EVERY 500 HOURS OF SERVICE OR 1 YEAR

ALSO PERFORM THE DAILY SERVICE AND THE PERIODIC SERVICE AT 250 HOURS OF SERVICE.

CHECK

Tilt sensor

⚠️ IMPORTANT ⚠️

Failure to follow this instruction may result in the machine tipping over.

It is essential that the machine is in the transport position with the turntable and the platform in the neutral position and the jib fully lowered.

- Switch on the machine.
- Place the machine on a level surface.
- Go into the "tilt calibration" menu on the ground level screen.
- Check that the value displayed is $0^\circ \pm 0.3^\circ$.
- If the value is within the tolerances: go back to the work page.
- If the value is outside the tolerances: refer to the machine's repair manual to calibrate the tilt sensor.

CHECK

Tightening of the platform fixing screws

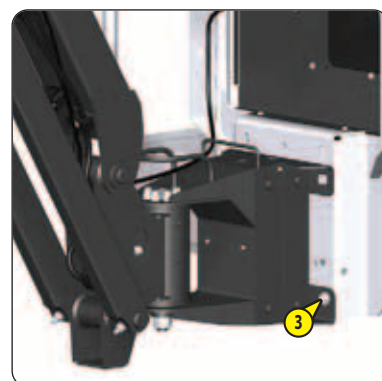
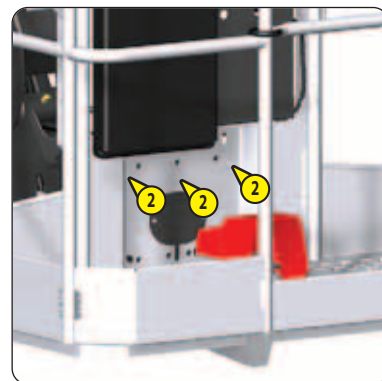
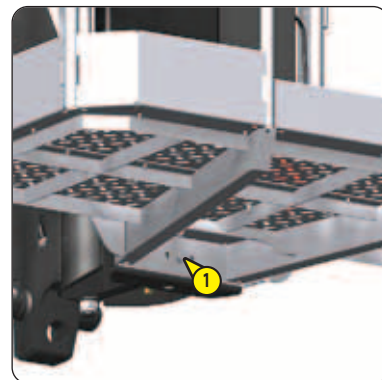
⚠️ IMPORTANT ⚠️

Failure to follow this instruction may result in the platform falling.

Always secure the raised jib using a suitable lifting device.

Note: the machine is powered up.

- Raise the jib and secure it using a suitable lifting device.
- Check the tightening torque of the fixing screw ①:
 - $69 \text{ N.m} \pm 13.5 \text{ N.m}$
- Fully lower the jib.
- Switch off the machine.
- Check the tightening torques for all the fixing screws ② and all the fixing screws ③, on the left and right-hand sides:
 - $69 \text{ N.m} \pm 13.5 \text{ N.m}$.



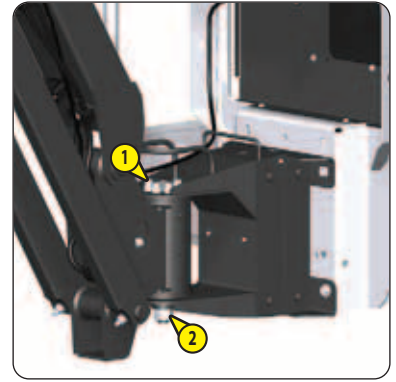
CHECK

Tightening of the platform rotation cylinder fixing screws

⚠ IMPORTANT ⚠

Failure to follow this instruction may result in the platform falling.

- Check all the fixing screw tightening torques ①:
 - 60 N.m $\pm$ 6 N.m
- Check the tightening torque of the pin ②:
 - 80 N.m $\pm$ 16 N.m



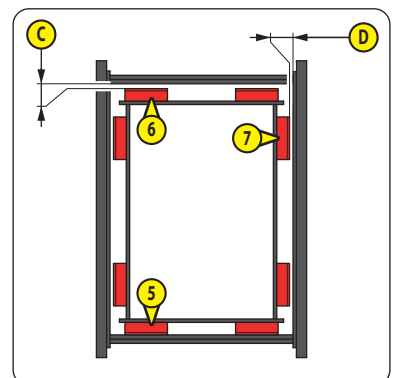
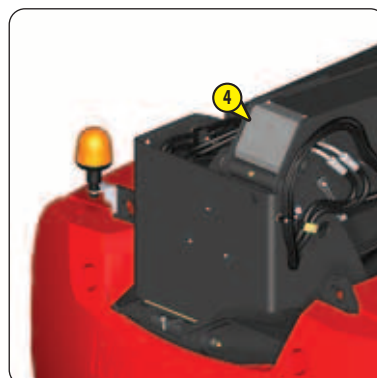
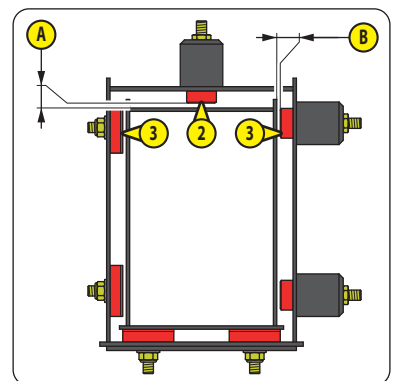
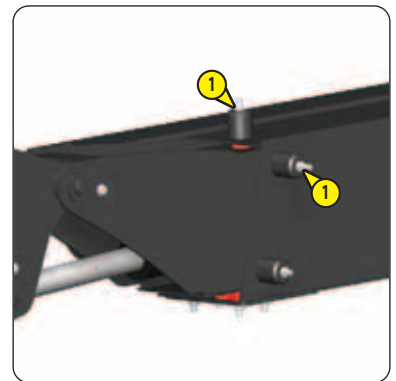
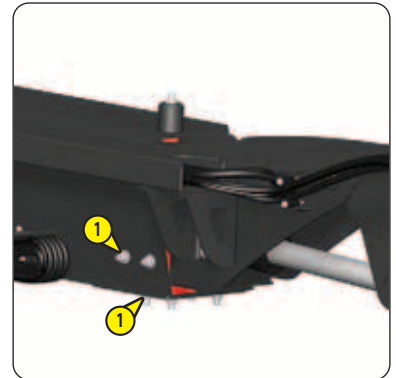
CHECK

Telescopic arm setting

⚠ IMPORTANT ⚠

It is recommended to adjust the telescopic arm chocking if the clearances are higher than the maximum values, refer to the machine's repair manual.

- Check all the wheel nut tightening torques ①:
 - 69 N.m $\pm$ 6.5 N.m
- Switch on the machine.
- Raise the jib slightly.
- Extend the telescopic arm for 1 second.
- Check the clearances between the pads and the telescopic arm:
 - A (upper pad ②) should be between 1 mm and 1.5 mm.
 - B (Side pads ③) must be between 0.5 mm and 0.75 mm on either side.
- Fully retract the telescopic arm.
- Check the clearances A and B again.
- Fully retract the telescopic arm.
- Fully lower the jib.
- Take off the cover ④.
- Raise the main arm slightly.
- Put several wooden pallets under the platform.
- Slowly lower the main arm until the pads ⑤ are in contact with the main arm.
- Check the clearances between the pads and the main arm:
 - C (Upper pads ⑥) must be between 1 mm and 1.5 mm.
 - D (Side pads ⑦) must be between 0.5 mm and 0.75 mm on either side.
- Raise the main arm slightly.
- Remove the wooden pallets.
- Fully lower the main arm.
- Switch off the machine.
- Put the cover ④ back in place.



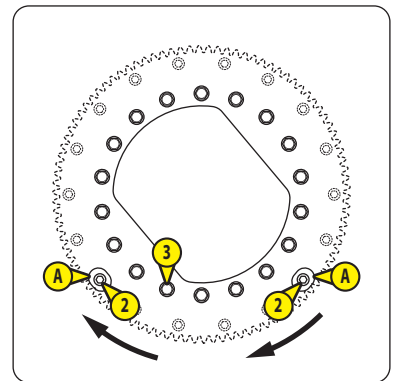
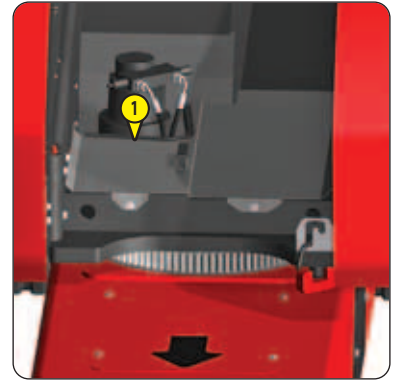
CHECK

Tightening of the fixing screws for the crown gear

⚠ IMPORTANT ⚠

Failure to follow this instruction may result in the machine tipping over.

- Put the safety strut in place, < OCCASIONAL OPERATIONS.
- Remove the turntable cover ①.
- Locate the 2 holes A.
- Switch on the machine.
- Turn the turntable to align the drill holes A with 2 fixing screws ②.
- Check the tightening torque for the first 2 fixing screws ②:
 - $215 \text{ N.m} \pm 21 \text{ N.m}$
- Turn the turntable to align the drill holes A with the next 2 fixing screws ② to check their tightening torques.
- Repeat the steps until the tightening torque for each fixing screw ② has been checked.
- Check the tightening torque for the fixing screws ③:
 - $215 \text{ N.m} \pm 21 \text{ N.m}$
- Place the turntable in the neutral position.
- Switch off the machine.



CHECK

Tightening of the fixing screws on the turntable rotation motor

⚠ IMPORTANT ⚠

Failure to follow this instruction may result in involuntary movement of the turntable.

Note: the safety strut is in place. The turntable cover has been removed.

- Check all the fixing screw tightening torques ①:
 - $76 \text{ N.m} \pm 15 \text{ N.m}$



CHECK

Counterweight fixing screw tightening

⚠ IMPORTANT ⚠

Failure to follow this instruction may result in the machine tipping over.

Note: the safety strut is in place. The turntable cover has been removed.

- Check the tightening torques for all the fixing screws ①, left and right-hand sides:
 - 175 N.m $\pm$ 35 N.m



CHECK

Hydraulic hoses

⚠ IMPORTANT ⚠

Always use a piece of paper or cardboard to check there are no hydraulic oil leaks.

Replace any damaged hydraulic hoses.

Note: the safety strut is in place. The turntable cover has been removed.

- Open the left and right turntable covers.
- Remove the right frame cover.
- Remove the front and rear frame covers.
- Check the condition of all the hydraulic hoses and that there are no leaks.
- Refit the front and rear frame covers.
- Refit the right frame cover.
- Close the left and right turntable covers.

REPLACE

Turntable rotation motor oil

⚠ IMPORTANT ⚠

It is recommended that the oil is slightly warm before being changed.

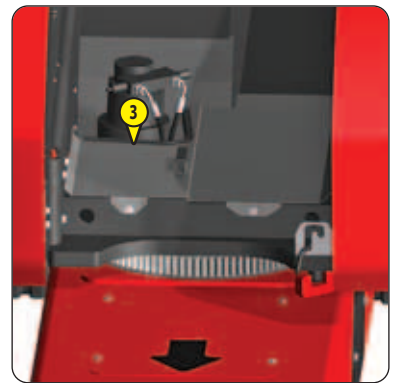
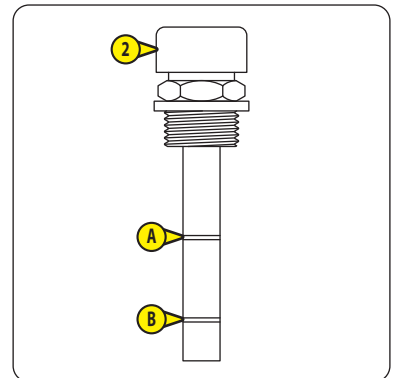
Note: the safety strut is in place. The turntable cover has been removed.

CHANGE THE OIL

- Place a drain tank under the drain plug ①.
- Remove the drain plug and the filler plug ②.
- Wait until the crankcase is completely drained.

FILL THE TURNTABLE ROTATION MOTOR

- Clean around the drain hole with a clean cloth.
- Refit the drain plug.
- Fill the turntable rotation motor with new oil, < LUBRICANTS.
- Clean the gauge on the filler cap with a clean cloth and put it back in place.
- Remove the filler cap. The level is correct when the oil is between the 2 marks ① A and ② B.
- If the level is low, add oil until the correct level is reached, < LUBRICANTS.
- Refit the filler cap.
- Put the turntable cover ③ back in place.
- Remove the safety strut, < OCCASIONAL OPERATIONS.



RESET

Maintenance warning

< ① 250H: RESET: MAINTENANCE WARNING.

➡ 1000H - PERIODIC SERVICE - EVERY 1,000 HOURS OF SERVICE OR 2 YEARS

ALSO PERFORM THE DAILY SERVICE AND THE PERIODIC SERVICES AT 250 HOURS AND 500 HOURS OF SERVICE.

REPLACE

Reduction gearbox oil

⚠ IMPORTANT ⚠

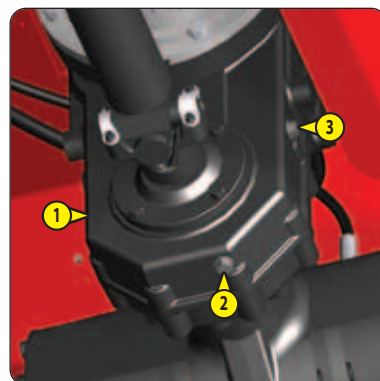
It is recommended that the oil is slightly warm before being changed.

CHANGE THE OIL

- Locate the reduction gearbox ① on the rear axle.
- Clean the outside of the reduction gearbox with a clean cloth.
- Place a drain tank under the drain plug ②.
- Remove the drain plug and the filler plug ③.
- Wait until the reduction gearbox is completely drained.

FILL THE ENGINE REDUCTION GEARBOX

- Clean around the drain hole with a clean cloth.
- Refit the drain plug.
- Fill the reduction gearbox with new oil, ⚡ LUBRICANTS. The level is correct when the oil reaches the rim of the filling hole.
- Refit the filler cap.



REPLACE

Front and rear axle differential oil

⚠ IMPORTANT ⚠

It is recommended that the oil is slightly warm before being changed.

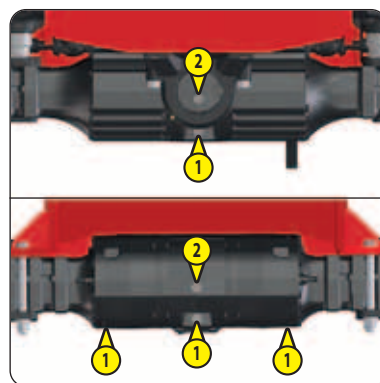
Note: replace the oil in the axle differentials one by one.

CHANGE THE OIL

- Clean the outside of the axle differential with a clean cloth.
- Front axle: place a drain tank under the drain plug ①.
- Rear axle: place a drain tank under the 3 drain plugs ①.
- Remove the drain plug(s) and the filler plug ②.
- Wait until the axle differential is completely drained.

FILL THE AXLE DIFFERENTIAL

- Clean around the drain hole(s) with a clean cloth.
- Front axle: refit the drain plug.
- Rear axle: refit the 3 drain plugs.
- Fill the axle differential with new oil, ⚡ LUBRICANTS. The level is correct when the oil reaches the rim of the filling hole.
- Refit the filler cap.



REPLACE

Front and rear wheel reduction gear oil

⚠ IMPORTANT ⚠

It is recommended that the oil is slightly warm before being changed.

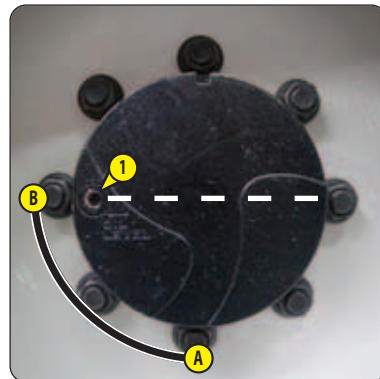
Note: replace the oil in the wheel reduction gears one by one.

CHANGE THE OIL

- Clean the outside of the gear reducer with a clean cloth.
- Turn the wheel to put the drain/filler plug ① in position ②.
- Place a drain tank underneath.
- Remove the drain/filler plug .
- Wait until the wheel reduction gear is completely drained.

FILL THE WHEEL REDUCTION GEAR

- Clean around the drain/filler hole with a clean cloth.
- Turn the wheel to put the drain/filler port ① in position ③.
- Fill the wheel reduction gear with new oil, ⚡ LUBRICANTS. The level is correct when the oil reaches the rim of the filling hole.
- Refit the drain/filler plug:
 - Tightening torque = 42 N.m ± 7 N.m



CHECK

*Electric pump motor silent blocks **

CHECK

*Crown gear clearance **

CHECK

*Speed of hydraulic movements **

CHECK

*Condition of cylinders **

CHECK

*Condition of control electric wiring **

RESET

Maintenance warning

⚡ ⚡ 250H: RESET: MAINTENANCE WARNING.

** Consult your dealer.*

➔ 4 1500H - PERIODIC SERVICE - EVERY 1,500 HOURS OF SERVICE OR 3 YEARS

ALSO PERFORM THE DAILY SERVICE AND THE PERIODIC SERVICES AT 250 HOURS, 500 HOURS AND 1,000 HOURS OF SERVICE.

REPLACE

CLEAN

REPLACE

Hydraulic oil

Filling filter and suction strainer

Hydraulic pressure filter element

⚠ IMPORTANT ⚠

It is recommended that the oil is slightly warm before being changed.

There can be a difference in level between hot and cold oil. It is recommended the level is checked again when the hydraulic oil is hot.

Clean the oil can before adding oil to the hydraulic oil tank.

Use a clean funnel to add oil to the hydraulic oil tank.

CHANGE THE OIL

- Open the right turntable cover.
- Locate the drain plug **1** and put a drain container underneath.
- Remove the drain plug and the tank plug **2**.
- Wait until the tank is completely drained.

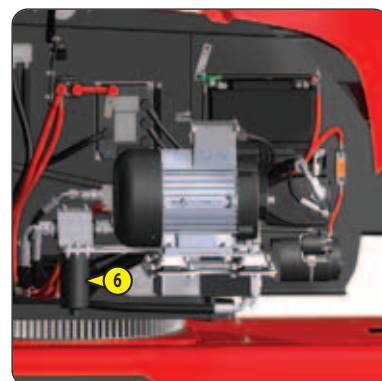
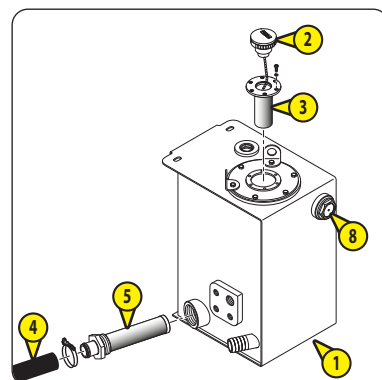
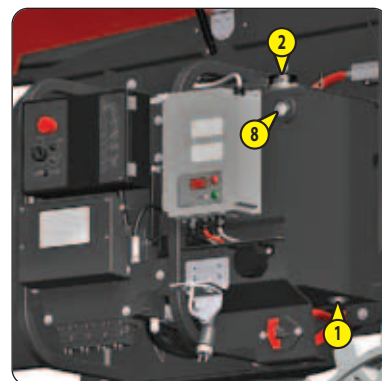
CLEAN THE FILLING FILTER AND SUCTION STRAINER

- Remove the filling filter **3**.
- Clean it with compressed air, from the inside out:
 - Maximum pressure = 3 bars. Minimum distance = 30 mm.
- Check its condition and replace it if necessary, < FILTERS AND CARTRIDGES.
- Locate the hydraulic pipe **4** and put a drain container underneath.
- Remove the hydraulic pipe and the suction strainer **5**.
- Clean the suction strainer with compressed air, from the inside out.
 - Maximum pressure = 3 bars. Minimum distance = 30 mm.
- Check its condition and replace it if necessary, < FILTERS AND CARTRIDGES.
- Check that there is no debris or dust in the bottom of the tank. Clean it if necessary.
- Refit the filling filter.
- Refit the suction strainer and the hydraulic pipe.

REPLACE THE HYDRAULIC PRESSURE FILTER ELEMENT

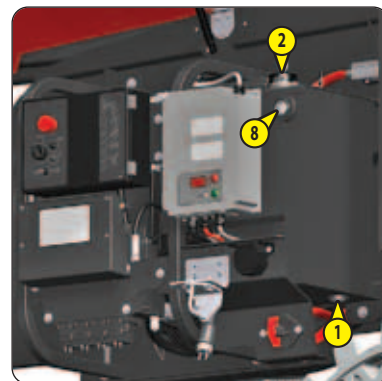
- Open the left turntable cover.
- Clean the outside of the hydraulic pressure filter **6** with a clean cloth.
- Place a drain tank underneath.
- Replace the hydraulic pressure filter element **7**, < FILTERS AND CARTRIDGES:
 - Unscrew the hydraulic pressure filter tank.
 - Remove the used hydraulic pressure filter element.
 - Put the new hydraulic pressure filter element in place.
 - Put the hydraulic pressure filter tank back in place.

FILL THE HYDRAULIC OIL TANK: see next page.



FILL THE HYDRAULIC OIL TANK

- Refit the drain plug ①.
- Fill the tank with new hydraulic oil, LUBRICANTS. The level is correct when the oil reaches the red dot on the level indicator ⑧.
- Refit the tank cap ②.
- Switch on the machine.
- Activate the machine's functions for 10 minutes.
- Check for leaks.
- Put the machine in transport position. Put the turntable and platform in neutral position. Lower the jib completely.
- Check the hydraulic oil level, add more if necessary, DAILY MAINTENANCE: CHECK: HYDRAULIC OIL LEVEL.
- Close the left and right turntable covers.
- Switch off the machine.



RESET

Maintenance warning

- 250H: RESET: MAINTENANCE WARNING.

2000H - PERIODIC SERVICE - EVERY 2,000 HOURS OF SERVICE OR 4 YEARS

ALSO PERFORM THE DAILY SERVICE AND THE PERIODIC SERVICES AT 250 HOURS, 500 HOURS AND 1,000 HOURS OF SERVICE.

CHECK

*Hydraulic circuit pressures **

RESET

Maintenance warning

  250H: RESET: MAINTENANCE WARNING.

** Consult your dealer.*

➤ OPTIONAL PERIODIC MAINTENANCE

CHECK

Hydraulic oil

- Order an oil analysis kit from your dealer.
- Take a sample of hydraulic oil and follow the instructions included with the kit.
- Keep the analysis report, replace the hydraulic oil depending on the results
 - ⚠ ➡ 4 1500H: REPLACE: HYDRAULIC OIL.

MANITOU oil analysis kit Part No. 958162.



REPLACE

Wheels

⚠ IMPORTANT ⚠

⚠ 2 - DESCRIPTION: CHARACTERISTICS and refer to the applicable stickers for information about the total weight of the machine and wheel load.

When lifting the machine with a mechanical or hydraulic jack:

- Always use a suitable jack for lifting the machine.
- Make sure that the 2 wheels on the opposite side to the lift are chocked.
- Position the jack near the wheel to be raised.
- Always use suitable jack stands to secure the raised machine.

⚠ IMPORTANT ⚠

Weight of a wheel = 220 kg (485 lbs).

- Loosen the wheel nuts slightly.
- Raise the machine.
- Remove the wheel nuts and the wheel.
- Put the new wheel in place.
- Refit the wheel nuts and tighten them slightly with a spanner.
- Lower the machine back down to the ground.
- Tighten the wheel nuts, ⚠ 250H: CHECK: WHEEL NUT TIGHTENING.



REPLACE

Fuses/relays

⚠ IMPORTANT ⚠

Ensure that the machine is switched off.

POWER CIRCUIT FUSE

- Open the right turntable cover.
- Locate the fuse holder ①.
- Remove the fuse holder cover.
- Replace the fuse:

Main power supply	700 A fuse
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- Put the fuse holder cover back in place.
- Close the right turntable cover.

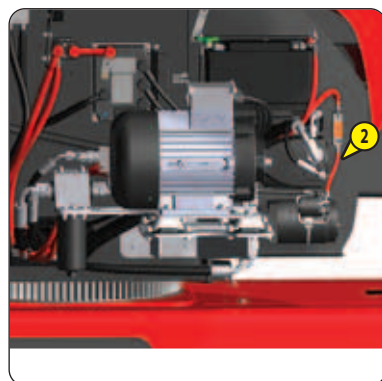


BACK-UP PUMP FUSE

- Open the left turntable cover.
- Locate the fuse holder ②.
- Remove the fuse holder cover.
- Replace the fuse:

Backup pump power supply	250 A fuse
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- Put the fuse holder cover back in place.
- Close the left turntable cover.

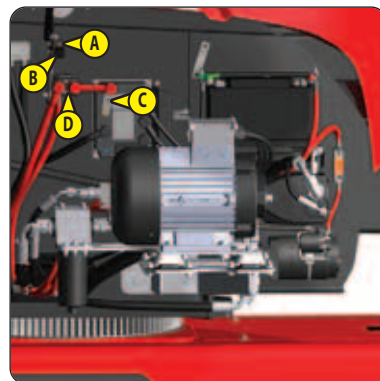


ELECTRIC PUMP MOTOR VARIABLE CONTROL FUSES/RELAYS

- Open the left turntable cover.
- Replace the appropriate fuse/relay:

A	Control power supply	10 A fuse
B	Control power supply	12 V 30 A Relay
C	Power supply	500 A fuse
D	Power supply	48 V 350 A Relay

- Close the left turntable cover.

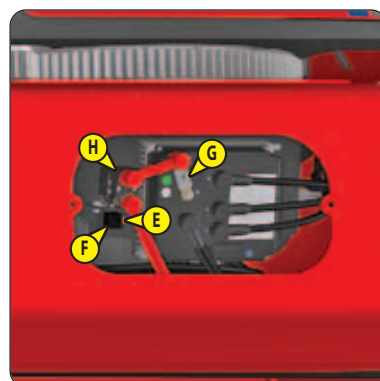


WHEEL MOTOR VARIABLE CONTROL FUSES/RELAYS

- Remove the left frame cover.
- Replace the appropriate fuse/relay:

E	Control power supply	10 A fuse
F	Control power supply	12 V 30 A Relay
G	Power supply	60 A fuse
H	Power supply	48 V 350 A Relay

- Refit the left frame cover.



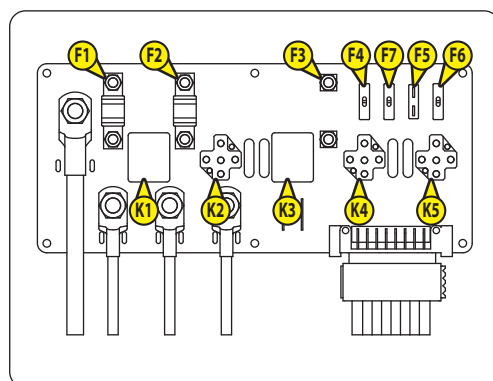
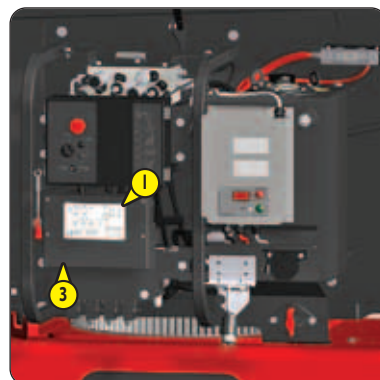
CONTROL SYSTEM FUSES/RELAYS

- Open the right turntable cover.
- Locate the fuse/relay box **3**.
- Remove the cover from the fuse/relay box.
- Replace the appropriate fuse/relay:

F1	Ground control panel	30 A fuse
F2	Shunt	30 A fuse
F3	Not used	-
F4	Voltage converter	10 A fuse
F5	Not used	-
F6	Auxiliary power supply	5 A fuse
F7	Anti-start (option)	1 A fuse
K1	Auxiliary power supply	12 V 40 A Relay
K2	Not used	-
K3	Voltage converter	12 V 40 A Relay
K4	Not used	-
K5	Not used	-

Note: STICKERS: FUSES AND RELAYS **1**.

- Put the cover back on the fuse/relay box.
- Close the right turntable cover.

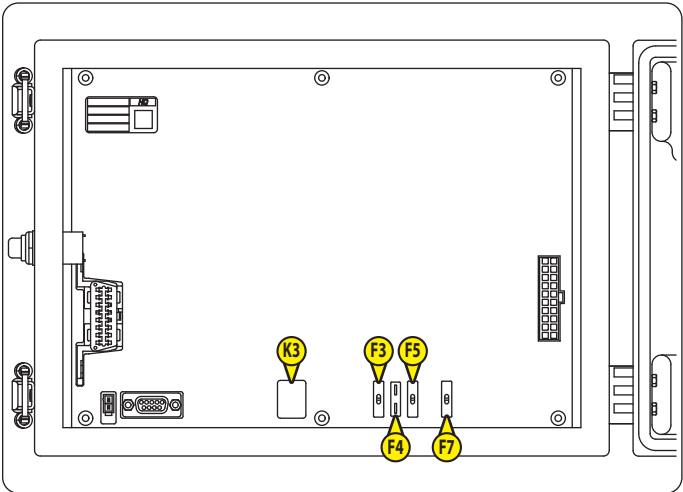


GROUND CONTROL PANEL FUSES/RELAYS

- Open the right turntable cover.
- Unlock and open the ground control panel 4.
- Replace the appropriate fuse/relay:

F3	Ground level screen and control panel in the platform	5 A fuse
F4	Not used	-
F5	Backup pump pushbutton	10 A fuse
F7	Ignition switch	10 A fuse
K3	General power supply	12 V 35 A Relay

- Close the ground control panel.
- Close the right turntable cover.



⚠ IMPORTANT ⚠

At all times, ensure that the positive terminals of the batteries cannot come into contact with the negative terminals or with the machine's metal parts.

*The battery must be removed and put back using a suitable lift truck.
Keep the battery level during its replacement.*

⚠ IMPORTANT ⚠

Weight of a battery = 376 kg.

Note: remove and put back the 48 V batteries one by one.

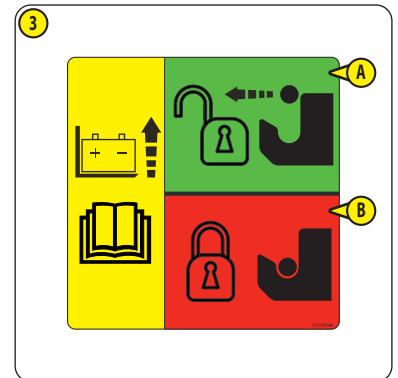
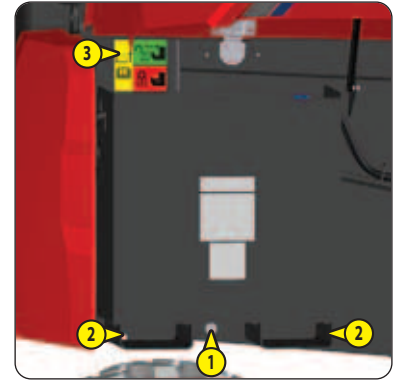
- Open the left and right turntable covers.
- Disconnect the left battery:
 - Negative (-) terminal first.
 - Positive (+) terminal.
- Disconnect the right-hand battery:
 - Negative (-) terminal first.
 - Positive (+) terminal.
- Remove the screw ①.
- Remove the battery using a lift truck:
 - Raise or lower the forks so they are level with the battery's fork pockets ②.
 - Slowly move forward to insert the forks into the fork pockets.
 - Slowly lift the battery until the red part ③ of the "battery lifting" sticker ③ is completely hidden by the battery.

Note: the green part ④ must remain completely visible.

- Slowly reverse to take the battery out of the machine.
- Slowly move the battery to the desired area.
- Slowly lower the battery to set it down.
- Gradually reverse to remove the forks from the fork pockets.
- Put the new in place using a lift truck:
 - Raise or lower the forks so they are level with the battery's fork pockets.
 - Slowly move forward to insert the forks into the fork pockets.
 - Slowly lift the battery.
 - Move and slowly lift the battery to its location on the machine. The red part ③ of the "battery lifting" sticker ③ must be completely hidden by the battery.

Note: the green part ④ must remain completely visible.

- Slowly lower the battery until it is correctly positioned on the machine. The red part ③ of the battery lifting sticker ③ must be completely visible.
- Gradually reverse to remove the forks from the fork pockets.
- Put the screw ① back in place.
 - Tightening torque = 102 N.m ± 20 N.m
- Connect the right-hand battery:
 - Positive (+) terminal first.
 - Negative (-) terminal.
- Connect the left-hand battery:
 - Positive (+) terminal first.
 - Negative (-) terminal.
- Close the left and right turntable covers.



USE

Safety strut

⚠ IMPORTANT ⚠

Always put the safety strut in place when you need to carry out a maintenance operation under the raised secondary arm.

If you consider there is not enough space to work with the safety strut in place:

- *Raise the secondary jib.*
- *Secure the raised secondary arm using a suitable lifting device.*

PUT THE SAFETY STRUT IN PLACE

- Locate the safety strut ①.
- Remove the nut and the washer ②.
- Switch on the machine.
- Raise the secondary jib at least 1 metre.
- Raise the safety strut and lock it using the stop A.
- Lower the secondary arm until it stops on the safety strut.
- Switch off the machine.

REMOVE THE SAFETY STRUT

- Switch on the machine.
- Raise the secondary arm slightly.
- Lower the safety strut.
- Fully lower the secondary arm.
- Refit the nut and the washer ②.
- Switch off the machine.

